

AUGUST 1916 ~ No 128

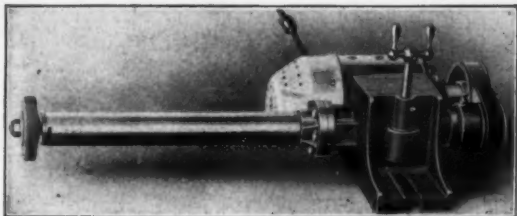
Monthly

A Reference for Buyers

HITCHCOCK'S
**MACHINE
TOOL LIST**

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

Published by
A. H. HITCHCOCK
1220-1235 Caxton Building
Chicago



Combination Internal & External Grinder

Designed for a wide range of accurate work

Smaller size machine will grind internally as small as 13-16" diameter; larger size as small as 2 1/8" diameter; depths up to 16".

Internal Grinding speeds 10,000 R. P. M. to 6,000 R. P. M.;

External Grinding speeds 4,500 R. P. M. to 3,000 R. P. M.

Slower speeds with **increased power** for carrying larger internal grinding wheels can be obtained by changing size of pulley.

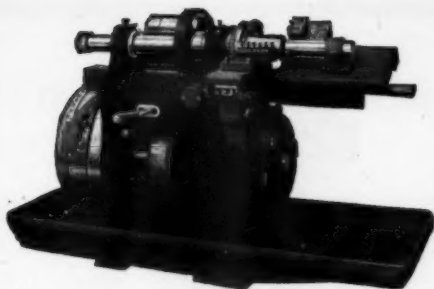


With extension removed and with angle plate fitted directly to housing for external and surface grinding of all kinds when used in connection with a lathe, planer, milling machine or boring mill.

Most Complete Line of Portable Electric Tools
Write for New Catalogue B

THE HISEY-WOLF MACHINE CO., Cincinnati, Ohio

New York Office, 50 Church Street



TURNING PISTONS and Piston Rings on a GRIDLEY

The Gridley Piston and Piston Ring Machine is an adaptation of the well known Gridley Automatic Turret Lathe for the rapid, accurate production of Pistons and Piston Rings.

For Rings the Gridley turns the inside concentric with axis of spindle, turns outside of rings eccentric and works cutting-off tool at the same time—hence about one-third of the rings are completely cut off by the time boring and outside finishing is completed.

In Making Pistons the most important feature is the method of supporting piston. On the Gridley it is held rigidly back against and on an arbor in nose of spindle by a pin thru piston pinhole and draw bar thru spindle.

Both accuracy and output are guaranteed.

*Send Blue-prints for actual production speeds for making
Pistons and Piston Rings up to 6" Diameter.*

THE NATIONAL-ACME MFG. CO.

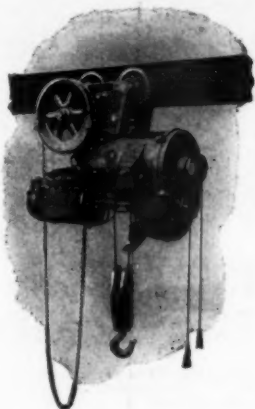
Windsor, Vermont

**Canadian Plant: Montreal
General Offices: Cleveland**

General Offices, Cleveland, Ohio; Branches at New York, Boston, Chicago, Detroit. Warehouses: New York, Chicago.

Foreign Representatives

Makers of Gridley Single and Multiple Spindle Automatics at Windsor, Vt. Also Acme Automatics, Threading Dies and Screw Machine Products at Cleveland, Ohio.



*A type "U" Hoist in your plant
will replace from 10 to 15
laborers—and it will pay for
itself in less than 90 days.*

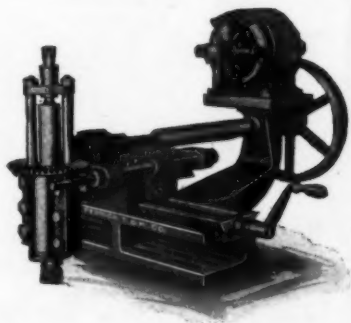
*Built in sizes from $\frac{1}{2}$ Ton to
6 Ton capacity.*

We'll be glad to mail you Bulletin 301-BH and prices.

PAWLING & HARNISCHFEGER CO.
MILWAUKEE WISCONSIN

Without a Pedrick
Portable Milling Machine

**You Often Pay Its Price
In Delay On One Job**



To appreciate its value just add the savings you could effect in a year by taking this handy, ever-ready tool to the job instead of bringing the job to the tool, then subtract the price. Result—net earning power.

You need this Pedrick Miller to do those big jobs that your standard machines cannot handle.

Catalogue explains all its various operations—
a comprehensive book of reference and key
to manifold savings. Your copy is waiting—
shall we send it now?

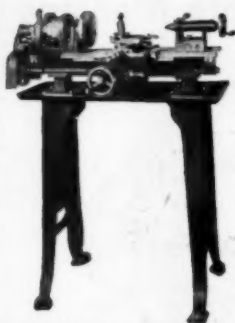
Pedrick Tool & Machine Co.

Headquarters for Portable Machine Tools
Boring Bars, Crank Pin Turners, Pipe Benders, etc.

3644 N. Lawrence St.,

Philadelphia, Pa.

Type B-4 Dalton 6-in. Lathe



Actual Swing $7\frac{1}{4}$ "

This is our new model. It is even stronger, better and more rigid than our earlier machines, which had established records in manufacturing small parts in quantities.

They have the accuracy for the finest tool-room work, and the power to do work usually taken to a lathe three times their size. So why tie up a big lathe on what can be done so economically on a "Dalton?"

Furnished on standard legs as shown in cut, with cabinet legs, or as a bench lathe. Electric drive, power driven, or foot power.

Write for Bulletin B-602

DALTON MACHINE CO., Inc., 1910-15 Park Av. NEW YORK

Turret Lathes and Screw Machines



built and designed to give maximum permanent accuracy and efficiency. Reasonably priced.

Himoff Machine Co., Inc.

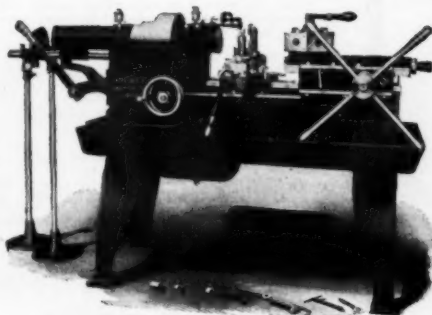
134 Mott Street,

New York, U. S. A.

**More Weight
Wider Range
Larger Capacity**

1 1-16x8 Inches

That's the Pierce



The Screw Machine You Have Been Waiting For

All we want is a chance to tell you the facts about it—what it will do, and is doing, that ordinary screw machines will not and cannot do; why it will do larger work than any other of equivalent size, do that or any work as fast or faster, and do it with a degree of accuracy that no machine of this type has ever surpassed.

We really have a remarkable screw machine, and we want you to know about it. May we tell you, wholly without obligation? Send us your address.

Pierce Machine Tool Co.

617 West Jackson Blvd.,

Chicago, Ill.



One firm bought one Then bought 31 more

—because it required only one of these inexpensive gages to demonstrate their utility and economy for every department where tapers are made.

Hartford Taper Gages

—should be used for testing every time you turn a taper—on twist drills, end milling, profile cutters, reamers, milling machine arbors, lathe centers, in tool-room work, etc.

The testing is done before a window. The gages are easily raised or lowered to a man's height, or may be taken off and used on a bench. They are adjustable over wide range, from 0 to No. 14 B. & S. taper. They save time and insure accuracy—and they cost so little for such good results.

Just drop us a line for the full details



Hartford Special Machinery Co.
285 Homestead Ave., Hartford, Conn.

YOU Want Tool Holders that have MADE GOOD

Armstrong Tool Holders

Were Awarded The

Grand Prize

**The Highest Possible Award at the Panama-Pacific
International Exposition—1915**



They Always Make Good

They Are Used in Most of the Big Machine Shops of the World

Send for Catalog

Armstrong Bros. Tool Co.

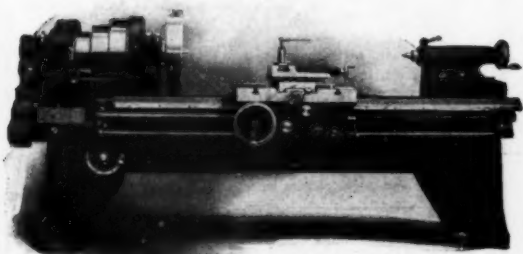
"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.



WALCOTT LATHES

Made in 14, 16, 18, 20, 26 and 28" sizes



For
Tool-Room and
Factory

Walcott Lathe Co.
Jackson, Michigan

Allen Safety Set Screws

Any Length Point or Thread.

We make a specialty of short lengths.



Allen Socket Cap Screws

Are neat in appearance and exceedingly strong. A big improvement over the slotted head type.



Send for circular No. 13 and sample screws

ALLEN MFG. CO., - Hartford, Conn.

Peoples Life Insurance Bldg., Chicago, Ill.

173 Princess St., Manchester, England

Abbott Steel Bearing Balls

Are Accurate and Highly Finished



In Sizes $\frac{1}{8}$ to $\frac{1}{2}$ -Inch

Our own perfected machinery enables us to produce the finest steel bearing balls, or in any grade desired, all highly polished and accurate to 1-10,000 of an inch. May we quote?

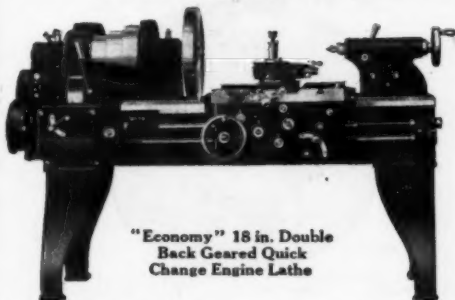
The Abbott Ball Company

Elmwood District, Hartford, Conn.



We Try

To Take Care of Our American Customers



**"Economy" 18 in. Double
Back Geared Quick
Change Engine Lathe**

The fact that we are over-sold for the next six months is not our fault. They have come too fast for us, that's all.

We have built a substantial addition to our factory, and have not accepted a foreign order for nearly a year and a half, yet we have been unable to meet the domestic demand for the 18-inch "Economy."

If you can anticipate your future needs, we would like to have you investigate this high-grade lathe, which was conceived by a designer of broad experience and unusual skill and is constructed with the greatest care.

The price is low for the quality, as we are turning them out in large lots, with the best equipment for economical production, and our overhead charges are unusually light for the volume of our business.

We shall be glad to get in touch with you

Rockford Lathe & Drill Co.

1827 Fourteenth Ave.,

Rockford, Ill.

**Do You Know the Advantage of
Sweetland Chuck Service?**



Better work. More work. Why not investigate?
HOGGSON & PETTIS MFG. CO., New Haven, Conn.



We manufacture a great variety of
Lathe Chucks, Drill Chucks, Centering Chucks
Also
Portable Jaws for Lathe face plates and Machine tables.

Let us send you our Catalog

The Cushman Chuck Co.
Established 1862 **Hartford, Conn.**

The New Britain Drill Chuck

when furnished with taper hole for separate arbor has a flat back as shown in cut. This makes a shorter chuck than when made with



a hub, and is a decided advantage. This change is made without sacrificing strength or holding power.

When Chuck is to be used with an arbor having any size of Morse Taper, we advise the purchase of chuck having arbor attached as

shown in previous advertisements, but when used with arbors having other tapers, or with straight arbors, this type of chuck is advised.

*Send for circular telling more about
this powerful grip chuck*

Union Manufacturing Co.

New York Office
26 Cortlandt St.

New Britain, Conn.

Makers of a Complete Line of Chucks

Pattern Shop Machinery

Special Prices if you refer to this ad.



Band Saws

Chicago No. 00 27 in. Wheels
 " No. 0 32 " "
 " No. 1 36 " "



Saw Tables

Chicago No. 5 Stationary Table
 " No. 9 Tilting Table
 " No. 10

Boring attachment if wanted.



Jointers

8 in., 5 and 6 ft. tables and guard.
 12, 16, 20, 24 and 30 in., 7 ft. tables
 and guard.

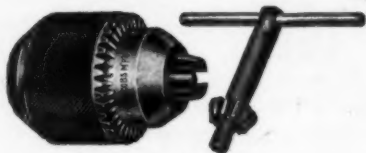
Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

Chicago Machinery Exchange

1214-1228 Washington Boulevard, Chicago

Our Customers Know Why!



Patented Sept. 16, 1902

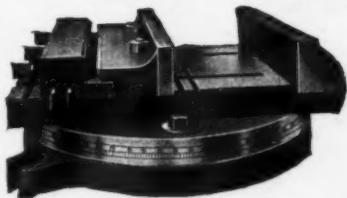
Why have our first customers, without solicitation,
 continuously and increasingly purchased *Jacobs Improved Drill Chucks*?

Our illustrated catalog "H" sent upon request.

The Jacobs Manufacturing Co.

Hartford, Conn., U. S. A.

Skinner Planer Chucks

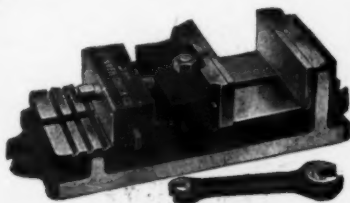


**Round
Base**

For the present we can make prompt delivery of Skinner Planer Chucks in the entire 16 sizes, with round or square base, and Skinner Drill Press Vises.

These are the heaviest and strongest Planer Chucks and Drill Press Vises made—the powerful and accurate kind which every shop should have as an essential part of its planer, or tool room equipment.

**Skinner
Drill
Press
Vises**



The "handy tools" for holding work on drill table. Try one and you will never be without them. Three sizes cover all requirements.

Printed matter illustrating our entire line sent on request.

The Skinner Chuck Co.

San Francisco Office:
Rialto Building.

London Office:
149 Queen Victoria St.

Factory and Main Office:
New Britain, Conn.

New York Office:
94 Rensselaer Street

The Lifting of 6 to 10 Men

Saved by the Canton Crane



When there are heavy castings or pieces of machinery to lift or move about, "*The Handiest Tool in the Shop*" Canton Floor Crane and Hoist replaces six to ten men.

It saves time, money, strained muscles, maimed toes and fingers, and the possible marring or breaking of valuable stock.

Built in several sizes, made extra strong where others have broken in our own work, and furnished with double gears, when desired, at small extra cost.

Catalog E-8—or trial?

CANTON FOUNDRY & MCH. CO., Canton, O.



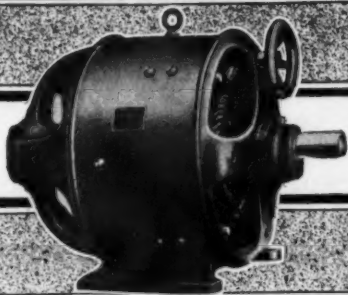
Floor Operated

Electric Traveling Cranes

do not require an operator in constant attendance and are frequently as well or better adapted for handling material than the more expensive cab operated.

We make all types of overhead cranes and hoists.

The Euclid Crane & Hoist Company
Euclid, Ohio



Get any speed easily—quickly

That's what you must do to get the most out of those machines on which the working conditions are frequently changing. The simplest way to get just the speed that suits the job is by applying

Reliance Adjustable Speed Motors

These motors run at any speed with a constant horsepower output over any range up to 1 to 10. To change the speed just turn the hand wheel—no electric controller is needed.

Get the details in Folder 10 L

(We build constant speed motors)

Reliance Electric & Engineering Co.
1050 Ivanhoe Road, Cleveland, O.

A Horizontal and Vertical Small Shaper and Slotter

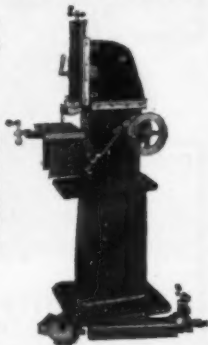
A small machine, at a low price, for small work. Built like a machine tool.

The Improved "Rhodes"

with vertical attachment as shown, is in reality a 2-in-1 horizontal and vertical shaper and slotter, covering a wide range of accurate machining. It is wonderfully efficient and economical in shaping and slotting light work—in making tools, dies, models, etc.

Description and price?

Rhodes Mfg. Co.
Hartford, Conn.



14,000 rivets headed for \$1.00 on a

Grant Noiseless Riveting Machine



A boy or girl at \$1.00 per day can head 14,000 rivets on bicycle mud guard braces in ten hours.

Rivet heads formed by this machine have a highly polished finish.

The machine is absolutely **NOISELESS** in operation.

Breakage of castings or marring of surface of articles being riveted, entirely eliminated.

We can furnish machines for belt or motor drive for rivets up to $\frac{3}{8}$ " in diameter.

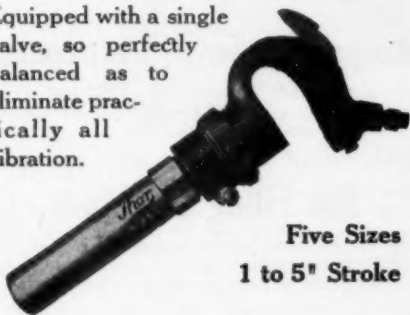
*Send us samples to be riveted and returned to you
Catalog?*

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Thor

Pneumatic Chipping Hammer

Equipped with a single valve, so perfectly balanced as to eliminate practically all vibration.



Five Sizes
1 to 5" Stroke

All Thor tools shipped on trial. Write nearest branch for particulars. Circular "W" shows complete line.

One Thor—More Thors

**Independent Pneumatic
Tool Company**

Chicago New York Pittsburgh Detroit
San Francisco Birmingham Montreal

Cochrane-Bly Company

Rochester, N. Y., U. S. A.

Manufacturers Of

Metal Sawing Machines

Made in five sizes, to cover every manufacturing requirement. Their thin milling saws combine high speed with the closest economy in high-priced steel.

Automatic Saw Sharpeners

Made in two sizes, for saws up to 15" and 24" in diameter. They grind and bevel at one operation the high and low tooth type milling saw.

Die Filing Machines

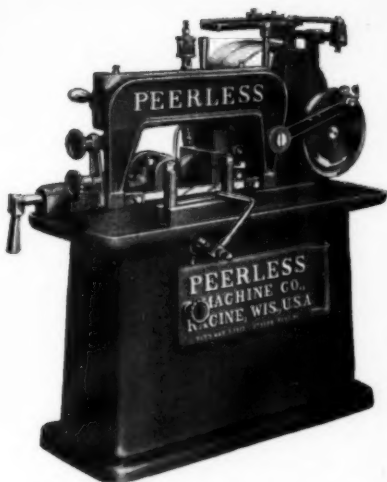
Made in two sizes, for the accurate filing of dies, punches, metal patterns, jigs and special gauges, and for filing duplicate parts requiring a close finish.

Universal Die Shaper

For die making and general tool room work. Operates both shaper ram and milling spindle at any angle.

**When considering this class of equipment,
would appreciate being consulted.**

What A User Says



One Paragraph From a Machinery Dealer's Letter:

"One of our customers has recently purchased from us two of your 6" PEERLESS High Speed Hack Saws, and they now wish to install several more, providing we take some of their old hack saws in exchange. They claim these old machines are as good as new, but they consider the PEERLESS so far superior to the others that they would like to fully equip their factory with PEERLESS machines."

The principle of construction in the PEERLESS High Speed Heavy Duty Cutting-Off Machine admits of a cutting speed which cannot be approached by the ordinary type of machine.

The output of this machine is controlled by the efficiency of the blade. At the maximum speed which this machine is guaranteed to operate it cuts off a 3" round cold rolled bar in $1\frac{1}{2}$ minutes.

Bearings are extra large. The ones that are subject to excessive wear are made of steel, hardened and ground, which eliminates the continuous adjusting and repairing that ordinarily is the case when a machine is worked to its utmost.

Peerless Machine Co.

1609 Racine St.,

Racine, Wisconsin

Saves Time and Material

Cuts Hardened Steel Rods or Bars, Reamers, Taps, Copper and Brass Tubing, Aluminum Etc., Quickly, Smoothly and Without Waste

Peter Bros. Abrasive Metal Cutter

—is a big economy in the tool room or wherever such material must be cut. Has a rapid, thin, clean cut. Doesn't draw the temper, saves grinding, saves time and much valuable material. Soon pays its own cost.

8" Size, \$17.50, with C. S.
Splendid for tool room. Cuts high-speed steel up to $\frac{3}{4}$ " square.

12" Size \$44, with C. S.
Cuts up to $2\frac{1}{2}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

15 Days' Free Trial

Write us or ask your dealer

PETER BROTHERS MFG. CO.

115 Railroad St., Algonquin, Ill.



AUTOMATIC HIGH SPEED SAW

Attention is invited to the "Marvel" No. 5 Cuts duplicate pieces faster and at less cost than any other method. Entirely automatic.

Feeds the Bar

Write for full information

Armstrong-Blum Mfg. Co.

341 N. Francisco Avenue
Chicago, Ill.



"Marvel" No. 5



Why Is It

That so many large shops are now equipped and being equipped with

The Newly Improved Racine High Speed, Metal-Cutting Machine?

FOR MANY GOOD REASONS—among others—because for speed, accuracy, economy and ease of operation THE RACINE cannot be surpassed. You MAY NEED ONE NOW. We will send a RACINE on any trial basis that is fair. WRITE US or any good dealer.

Racine Tool & Machine Co.

1500 Junction Ave. S., Racine, Wis., U. S. A.

Combination Disc Grinder & Roll Sander

"Best machine ever built for pattern shop use"

Patented



The No. 20 Gardner combines both the disc wheel and the sanding roll into a compact, sturdy and accurate machine. The disc wheel is used for producing flat surfaces and external curves; the sanding roll perfects internal curves which have been roughed out on a band saw.

Both this disc wheel and the roll remove stock with extreme rapidity and accuracy. With this machine at hand your apprentice boy can do, with greater speed and quality, much of the work formerly done by your best man. A Gardner No. 20 soon pays for itself in any modern pattern shop working four or more men.

Get the details today

Gardner Machine Co.

The Disc Grinding Authorities

Beloit, Wisconsin

Largest Disc Grinder Builders in the World



The *Greenfield*

For Special Work, Tools, Jigs, etc.

This Universal Grinder is just the machine needed in many of the shops engaged in equipping for the manufacture of special lines. It is an all-around grinder and will handle about any kind of a job that comes within its range.

It will turn out accurate, dependable work. Also, we believe we are perfectly correct in stating that we furnish this machine with a larger and more complete set of attachments than can be had for any grinder selling at anything like the same price.

We also build Plain Grinding Machines for production work

Greenfield Machine Company
Greenfield, Mass., U. S. A.

→ **Save**

$\frac{1}{2}$ Your Drilling Expense

$\frac{1}{3}$ Your Drill Cost

$\frac{1}{4}$ Your Drill Grinding Cost

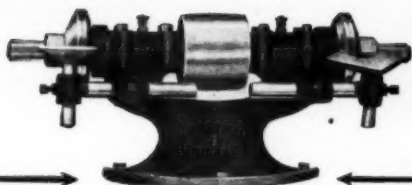
Install a New Yankee Drill Grinder

Catalog and Particulars on Request



Wilmarth & Morman Co.

1185 Monroe Ave., N.W. Grand Rapids, Mich., U.S.A.



Grinders and Equipment

Bench and Floor Emery Grinders, to carry 3-inch to 20-inch grinding wheels. Also polishing machines, and combination grinding and polishing machines. Some with plain bearings, others with wick oiling bearings, and the best are with ring oiling bearings. All are designed to meet the demand for low, medium and high grade machines.

These Emery Grinders are built in quantities sufficient to keep down the cost, by workmen of the highest skill, and are backed by years of experience in designing and building successful grinding machines.

Send in a trial order, examine the machines, and if not satisfied they are all I claim, return at my expense.

It will pay you to get my prices—now—on

Emery Grinders
Polishing Lathes
Saw Mandrels
Bench Tapping Machines
Lathe Arbors

Lathe or Hollow Mills
Countershafts
Wood Turning Lathes
Foot Punch Presses
Chuck Arbors

E. O. PARTRIDGE

2041-49 W. Lake St.,

CHICAGO



Handles From Steel

For power tools and similar purposes

Accurate, highly finished, complete on receipt, ready to attach. Manufactured as a specialty, we offer you the result of quantity production, in quality and price. Estimates given on large screw machine work, handles and screws of any description.

Write for price list and discounts.

The Cincinnati Ball Crank Co.
Oakley, Cincinnati, Ohio

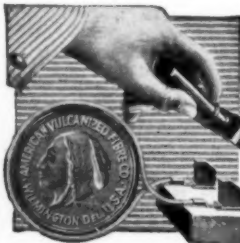


Vul-Cot Fibre

Its high insulating properties add materially to its value when used in connection with electrical or electrically operated machinery. Its safety and ease of machining commend it for switch handles, etc.

VUL-COT FIBRE is purer in content, more homogeneous, more nearly uniform, and machines perfectly.

We will gladly assist engineers in their researches regarding the possible use of Vulcanized Fibre.



**AMERICAN VULCANIZED
FIBRE COMPANY**

560-570 Equitable Building,
Wilmington, Del., U. S. A.
and branches.

**World's Largest Makers of
Vulcanized Fibre.**

Complete stock for immediate
shipment at Chicago.

Low Heat Treatment

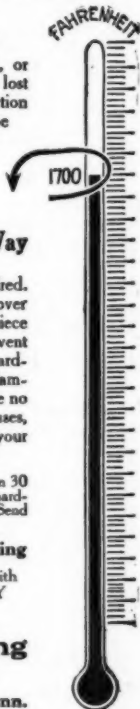
For High Speed Steels

No Failures—No Distortion—No Pitting—
No Breaking—No Skill Needed



The Old Way

Temperature, 2200 Fahr., or more. Result, many pieces lost because of bursting, distortion or pitting, which cannot be entirely avoided, even when the hardening and tempering are done by highly skilled men.



The **HETZY** Way

HEAT EASY

Skilled men are not required. The temperature is not over 1700 Fahr., and every piece comes out the same shape it went in, perfect in temper and hardness, and without surface damage of any kind. There are no disappointments and no losses, which make a big saving in your high-priced tungsten steel.

Sold in 100-pound containers, on 30 days' trial, at our risk. Glad to harden a few pieces for you free. Send them in, or ask for more proofs.

Don't Delay Investigating

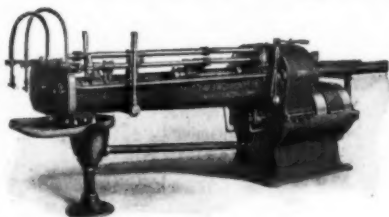
Your satisfaction begins with
your first trial of HETZY

**Bennett
Metal Treating
Company**

Elmwood,

Conn.

Broaching Machines And Broaching Tools



Our Famous Double Machine

The Most Complete Line In The World. We make our machines in 5 sizes and 11 types. *Send for particulars.*

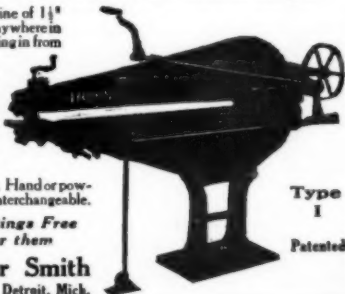
THE J. N. LAPOINTE CO., - - New London, Conn.

Quickwork Rotary Shear

Revolutionizing curved and irregular
cutting in sheet metal

Equals Five Men With Hand Snips

Cuts any curved line of $1\frac{1}{4}$ " radius or more, anywhere in sheet without cutting in from side. Leaves the metal flat and with true edges. No waste in cutting, saving from 10 to 40% of stock. Reduces labor cost from 75 to 90%. Sizes to cut up to $\frac{3}{4}$ " steel. Hand or power drive, instantly interchangeable.



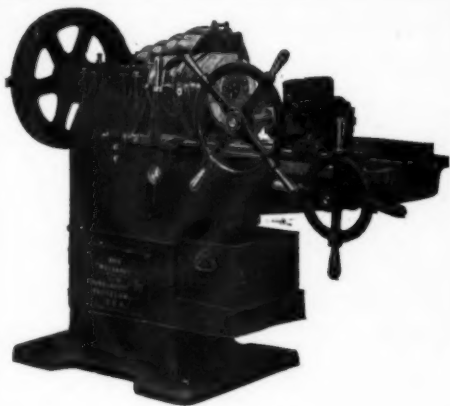
**Type
I**

Patented

*Sample cuttings Free
Write for them*

H. Collier Smith

815 Scotton Ave., Detroit, Mich.



Reliance Bolt Cutters

Built in sizes $\frac{3}{4}$ inch to 6 inches, Single, Double and Triple, of the most up-to-date design. There is, also, a good reason why the "Reliance" is such a satisfactory machine for accuracy of threads cut, large production and low cost of maintenance, even in the hands of inexperienced labor. A lot of this reason is in the Opening Die Head, and we would like to tell you all about it. Interesting information for the asking.

The Foote-Burt Co., Makers
Cleveland, Ohio

A Mighty Handy Rack And It Doesn't Cost Much



For Pipe, Shafting and Bars

It is our own design; we made it because we wanted something better ourselves. It proved so much better that it repaid us over and over, and others wanted it, too. Now we are making so many that we have the cost down, and you get a real bargain.

It saves 75 percent in storage space, makes it easy to get at what you need, and enables you to keep your bar stock properly assorted and counted in plain sight.

On account of advancing foundry costs, we solicit your prompt inquiry—today, if convenient.

Wm. S. Yohe Supply Co.
314 Lincoln Way, West, Canton, Ohio

The Curtis Oil Extractor Lowers the Cost of Your Oil



Wasting valuable oil is a very expensive habit, and the Curtis reverses the process to your immediate and lasting profit.

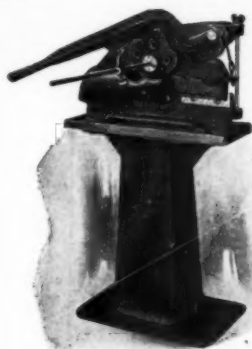
The oil is taken from your chips and shavings in a steady, economical way. The cost of the machine is returned to you in a short time, and after that the saving is practically all velvet. Can you afford to miss this great economy?

No. 400 — Capacity: 2 Bushels

Your Choice of 3 Sizes

Stop the waste now—write us for details

A. B. Curtis Co., P. O. Box 44,
Worcester, Mass.



Nos. 1, 2 and 5 Shears and Rod Cutter



Nos. 3 and 4 Shears

Hercules Shears and Rod Cutters

No. 0—	Shear (Tool Makers Bench Machine)	Cuts $\frac{1}{4}$ " Iron Rod, $\frac{1}{16}$ " Flat Iron.
No. 1—	Shear, Cuts $\frac{1}{2}$ " Iron Rod and under,	$\frac{3}{16}$ " Flat Iron and under.
No. 2—	" " " " " "	" " " " " "
No. 3—	" " " " " "	" " " " " "
No. 4—	" " " " " "	" " " " " "

Shear blades have a draw-in cut with no tendency to crowd work out of shear. Pressure is directly over the cut by a rolling contact. Arm of movable blade is operated with a steel band. No springs on the machine.

Send for Shear Catalog

Manufactured and For Sale By

W. C. & F. C. TUCKER, Hartford, Conn., U.S.A.

Your Plant May Be The Finest Ever

But ten to one you are still doing your light tool dressing, forging, miscellaneous blacksmithing, etc., in the old "Village Blacksmith" way—by hand, slowly and at excessive cost.

A Barr pneumatic light forging hammer will pay you as big dividends in proportion to its cost, as any tool you have in the plant. Post yourself on it!

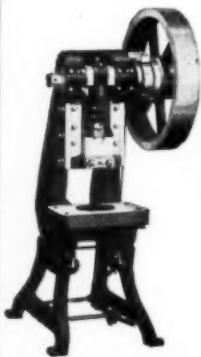
Circular 10 H

H. Edsil Barr, Mfr.
Erie, Penna.



Speed, Power, Strength

Are combined to the
Fullest Extent in



HIGH DUTY
ROCKFORD
PUNCH PRESSES

Made in Straight Side and
Inclinable types and various
sizes. Specially adapted for
Manufacturing.

Write for complete details

Rockford Iron Works
Rockford, Ill.

Square Holes—with

Maximum Accuracy
Minimum Cost

When a simple tool, like the one pictured at the bottom of this page, will drill your square or rectangular holes at a tenth the cost, what's the use of paying ten times too much for the privilege of broaching them?

The "Radbore" Head

drills them with either sharp or round corners, either with flat bottoms or through bottoms, simply, easily, quickly.

The "Radbore" Head is not a costly machine, but a comparatively inexpensive tool which you can attach to your milling machine and do the work of the broaching machine, keyseater and slotter, at a mere fraction of both operating expense and investment cost.

Write for the "Radbore" booklet, which describes
this wonderful economy tool

Lawson & Company, Inc.

90 West Street, New York City



Instead of showing you just a picture of the mandrel here, we would rather send you an unusually complete treatise on its actual application to shop work in many fields.

This book is carefully illustrated throughout, and shows the mandrel in actual use. You can see exactly how and why a set of nine NICHOLSON EXPANDING MANDRELS fits every hole between $\frac{3}{4}$ " & 7" instantly.

The book is yours for the asking.

W. H. NICHOLSON & CO.
117 Oregon Street, Wilkes-Barre, Pa.

NICHOLSON

Expanding Mandrel

Kelly PRODUCTION Tools



The outfit shown in cut, with three turret bars and 36 type B reamers, gives any diameter in ten thousandths from 15-16ths to 5 1/2 inches. Each reamer has an adjustment of 1/4-inch.

Kelly Boring and Reaming Tools are made for any diameter from 9-16ths to 12 inches and larger.

Write for the Catalog

THE KELLY REAMER CO.
CLEVELAND, OHIO, U. S. A.

C. W. Burton, Griffiths & Co., London, English Agents.
Burton Fils, Paris, French Agents. 40 Domestic Agencies.



Burke Quality Excels on Fine Points

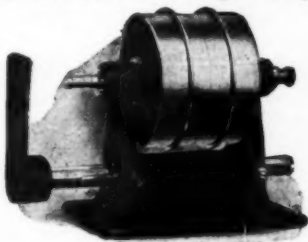
Machines of
Burke Quality
are never built
with any name
cast on the
frame but our
own—

**BURKE
CONNEAUT
U. S. A.**

For Sale: $\frac{3}{8}$ " x 3" x 30" C. R. Steel

**This Tapping Machine
Now Has Greater Capacity**

**Burke's
No. "D" Taps
 $\frac{5}{8}$ " Holes
in
Horseshoe
Steel**



BUILT throughout with exceptional care, our several sizes give service in proportion. Accurate, rapid and convenient, they give solid satisfaction. No. "D" sells for \$45.

Send for details today

The Burke Machine Tool Co., Conneaut, Ohio

The Walton Tap Extractor **Quickly Removes a Broken Tap** **Without Injuring the Thread**



THE WALTON TAP EXTRACTOR eliminates the loss from removing broken taps in the usual way.

Simple in construction and use

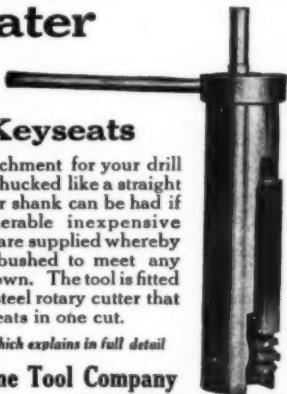
Often pays for itself the first time it is used.
Prove it at our expense by sixty-day free trial.

*A novel operation, fully described in
illustrated folder. Send for copy.*

THE WALTON CO., Hartford, Conn.

Keyseater

For Milling



Internal Keyseats

This tool is an attachment for your drill press. It can be chucked like a straight shank drill. Taper shank can be had if required. Innumerable inexpensive eccentric bushings are supplied whereby the tool may be bushed to meet any diameter above its own. The tool is fitted with a high speed steel rotary cutter that mills internal keyseats in one cut.

Write for Catalog O which explains in full detail

National Machine Tool Company

2268 Spring Grove Ave.,

Cincinnati, Ohio

500 Pieces a Day—Or 1500?

The latter output is yours at the same labor cost with T. & F. "Sensitive Radials"

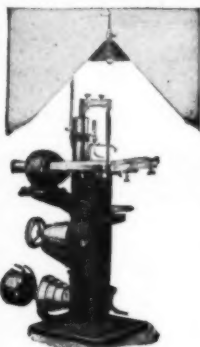


MANUFACTURERS have doubled and even trebled their capacities by installing our 3-foot Radials for drilling holes up to $\frac{3}{4}$ -inch in big, hard-to-handle pieces. They have all the desirable features of our standard line, and by using drilling heads of different types they can be made to cover nearly all drilling requirements within their range. Such operations as drilling and tapping, or drilling and counterboring are accomplished without losing time changing tools and speeds.

We have some interesting cost comparisons and production records. Acquainting yourself with them may prove exceedingly profitable.

The Taylor & Fenn Company
Hartford, Conn.

Rearwin Die Filing Machines



***Increases the Output
Decreases the Cost***

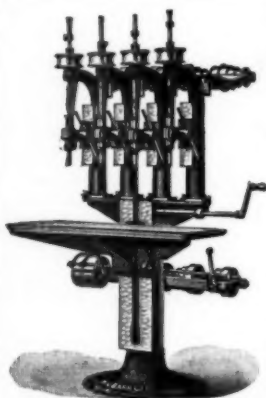
Does both large and small work. Any standard file 4" to 12" in length can be used. Stroke adjusted from 1" to 7". File releases on up-stroke. Shaft or motor drive gives rapid production and a uniform degree of clearance in your dies or other work where straight filing is required. Hack saws can be used for making templates.

Adjustable Speed Stroke & Table

*Descriptive circulars and
prices sent on request.*

W. D. Rearwin

341 Mill Ave., Grand Rapids, Mich.



**The Well Known
H. G. Barr Line
of
Sensitive Drills**

**with one to six
spindles.**

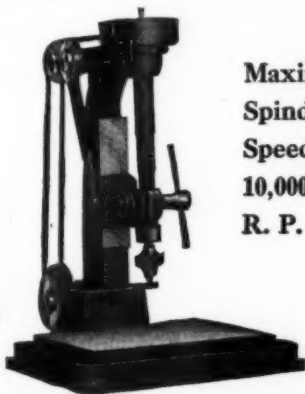
***Send for catalog
if interested***

Francis Reed Co.

43 Hammond St.
Worcester, Mass.

Save Money

with this
High Speed Drill



**Patents
Pending**

**Maximum
Spindle
Speed
10,000
R. P. M.**

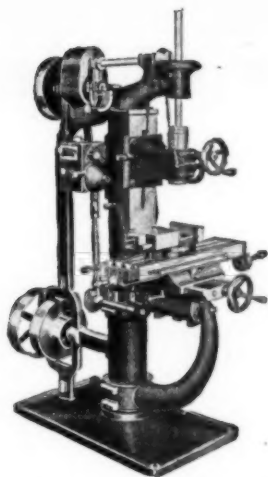
**Double Your Production on Holes
up to $\frac{3}{8}$ " in diameter**

**This machine is carefully and accurately built
to give the greatest service. Equipped with
Hess Bright Ball Bearings throughout.**

Ask for Bulletin No. 502

**Leland-Gifford Co.
Worcester, Mass., U. S. A.**





Saving Valuable Tool Room Time

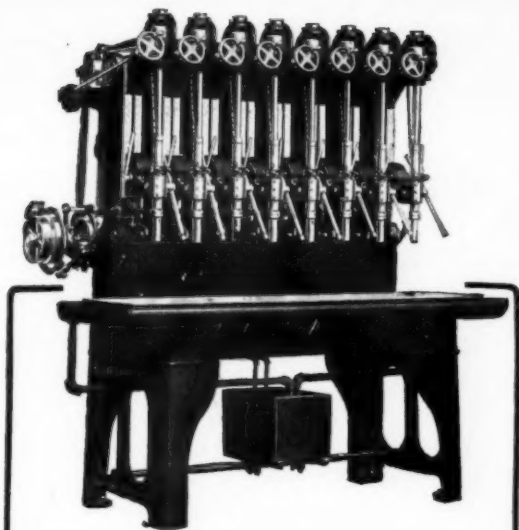
Knight Milling and Drilling Machines save 20 to 50% of time in the tool room and on hard machining of all kinds. Being exceptionally convenient, they are unequalled for quick and accurate work on dies, jigs, metal patterns, moulds, etc. They mill, bore and drill at any angle with only one setting of the work.

The Knight Duplex Miller

is designed for light work that can be milled on two sides at a time, such as frames of typewriters, cash registers, etc.; also good for milling flats, squares, and hexagons on shafts, tools and special nuts.

It is expensive to be without these machines

W. B. Knight Machinery Co.
St. Louis, Mo.



Henry & Wright Drilling Machines

Their Economy—Reason and Proof

The reason for their great economy is their patented gearless power transmission, with frictionless bearings, and other Henry & Wright improvements fully described in our literature.

The proof lies in their adoption by many of the largest plants in the country, after most exhaustive tests. One such concern alone has over 2,300 Henry & Wright drilling spindles in operation. Further particulars upon request.

Write for description—1 to 8 spindles—for $\frac{3}{4}$ " drills and smaller, and for our free Speed and Feed Chart

The Henry & Wright Mfg. Co.
760 Windsor St., Hartford, Conn.

If You Could Graft an Extra Hand On
Would Get About the Same R

The Ne Quick-Change Speed S

**Dependable High-grade, High-speed
Tools of Supreme Efficiency**

Safety First Design. Four Spindle Speeds, adaptable to either carbon or high-speed drills, are instantly obtained by operator without moving from his normal position and without stopping the machine.

Drills and tools may also be changed without stopping the machine, with the aid of an automatic chuck.

Those "just-a-moment" stops for changes, eliminated by Sipp's Drilling Machines, are what make ordinary drill press operation costly.

Full power transmitted to spindle with straight belt—idler automatically keeps belt taut.

Ball bearing throughout. Efficient oiling system.



Made in capacities of from one to eight spindles. Single-spindle machine weighs, net, 925 pounds.

Send for descriptive bulletin giving full information.

The Sipp Mach

Keen Street,

and On Each of Your Drill Press Operators You
Same Results as You Can By Using

New Sipp ed Sensitive Drill Presses

le to
tain-
posi-
the
by
nary

ight
ine

Machine Company

Paterson, N. J., U. S. A.

OPEN STRAIGHT END-
LESS BELT. CAN BE
PUT ON IN 10 SECONDS.

INDEX DIAL SHOWING
SPINDLE SPEEDS OR
DRILL SIZES EASILY
READ.

NEW AND EFFICIENT
SPINDLE OILING DEVICE

LONG STEEL FEATHER
STAYS RIGID AND PRE-
VENTS CRAMPING OF
GEAR TEETH.

BELT SHIPPER: FOR ANY
ANGLE. ABOVE OR BE-
LOW. WITHOUT ADJUST-
MENT.

SHAPE OF GROOVE FA-
CILITATES REMOVING
CHIPS

BALL BEARING FOR TABLE
WEIGHT.

TELESCOPE SCREWS,
AVOID BORING FLOOR.

NUMBER OF BALL BEARINGS 14.
DIRECTNESS OF DRIVE SAVES
POWER AND INCREASES BELT
EFFICIENCY.

IDLER PULLEYS ON SLACK
SIDE KEEP BELT TIGHT
AND INSURE PULL WHEN
PULL IS NEEDED.

CRANK HANDLE TO SHIFT
BELT INSTANTLY.

NOTE LONG FEED PINION
BEARING.

BEVEL GEAR DRIVE.
BOTH GEARS AND BALL
BEARINGS IN OIL POT
—SPLASH SYSTEM

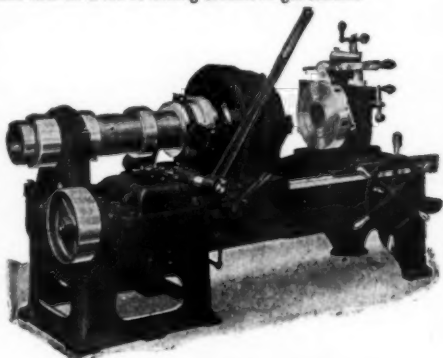
ELEVATING SHAFT. IS
IN NATURAL POSITION
TO REACH AND CRANK
CLEARS WORK.

WITH SPEED EASILY CHANGE-
ABLE. MORE EFFICIENT SPEEDS
WILL BE COMMONLY USED.

FIGURE 69

When Ready

—to cut threads, you don't want to find something wrong with the machine. Or if you have a hurry-up job, you don't want to remove a lot of screws and plates to change dies and do a lot of fussing around to get started.



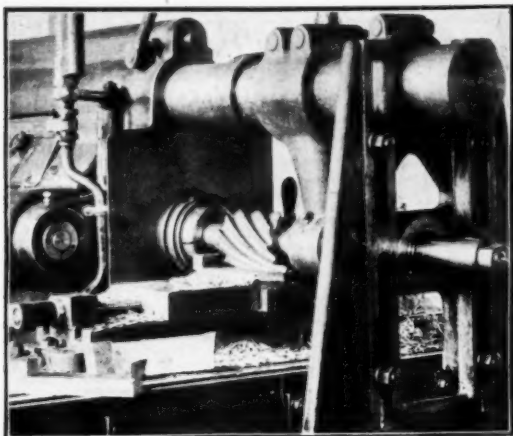
B. & K. Power Pipe Machines

—are so simply designed and strongly built that they are always on the job, and the dies are quickly changed without removing a screw. They are quick to make ready, they are rapid in production, and their work is clean-cut and highly accurate.

They are made in 17 styles and sizes, for $\frac{1}{4}$ " to 18" pipe. Some are designed for handling many sizes with provision for quick adjustment, and others for especially rapid work on one size of pipe for manufacturing in quantities. In fact, they are made to cover every variety of pipe threading requirement to the best advantage. Belt or motor drive.

May we suggest one that is best suited to your needs?

Bignall & Keeler Machine Works
Edwardsville, Ill.



Doubly Efficient

**Handling a heavy milling job on a B. & S. Heavy
Service Milling Machine using B. & S.
Coarse Tooth Milling Cutters**

That's the way to secure economical results. With these cutters on the job you can take deep cuts, use fast feeds and do a lot of work between grindings. They cut fast and freely and consume a minimum of power.

If you have B. & S. Milling Machines and you want to get the best possible results always specify "Brown & Sharpe Cutters" on your orders and realize the full efficiency of this B. & S. combination—powerful machines and high grade cutters. You will find that it pays.

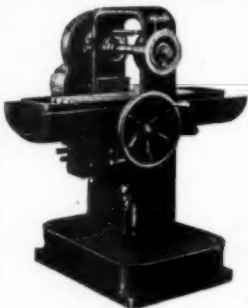


Write for our Catalogs

**Brown & Sharpe
Mfg. Co.**

Providence, R. I.

We Are Proud Of Its Record



Wherever it is used, this sturdy machine is making the kind of records that would delight you on your work. Let us tell you about them, or refer you to the users. The

Briggs High Duty Milling Machine

is made to meet the demand for a considerably higher efficiency—something better adapted to taking heavy and rapid cuts in manufacturing, with absolute accuracy. It takes wide cuts in hard steel to the full power of the belt without tendency to chatter. It is the ideal miller for both tool room and shop.

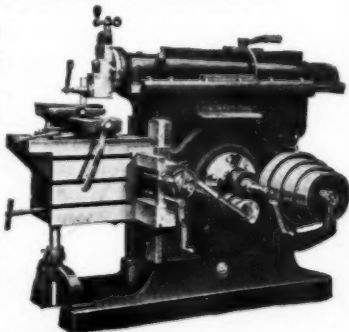
The full details will interest you. Will you write for them?

GOOLEY & EDLUND, Inc., Cortland, N. Y.

SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

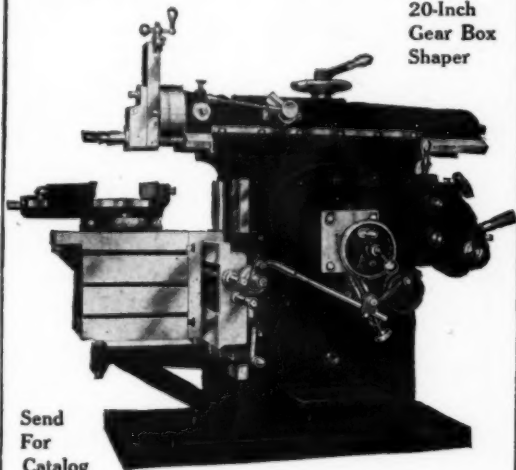
24", 28", 32"
Geared
Shapers of
the Belt Shift
type.



The Smith & Mills Co. Station B,
Cincinnati, O., U.S.A.

DAVIS SHAPERS

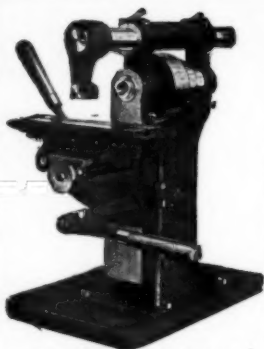
20-Inch
Gear Box
Shaper



Send
For
Catalog

14" Cone pulley drive.
16"—20"—25" Single pulley,
Gear Box. Can be arranged
for motor drive.

DAVIS MACHINE TOOL CO., Inc.
ROCHESTER, N. Y., U. S. A.



Burke's No. 3 Bench Millers

Are Seasoned Tools

Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.; traverse feed, $3\frac{1}{4}$ in.; vertical motion of knee, $8\frac{1}{4}$ in.; table surface, $3\frac{1}{4} \times 12$ inch.

Write for Catalog, which also shows larger and smaller sizes.

The Burke Machine Tool Co.
Conneaut, Ohio

In A Class By Itself

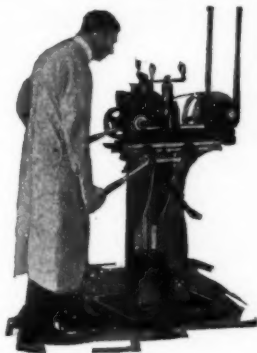


Is our New Model Bench Miller; because, we furnish with the machine our Quick operating Lever Vise, also Index Centers and two speed friction countershaft.

Send for circular

The Carter & Hakes Co.
West Winsted, Conn., U. S. A.

AGENTS—for New England and New York, Hill, Clarke & Co.
WESTERN AGENTS—Marshall & Huschart Machinery Co.,
Chicago, St. Louis, Indianapolis.



There's Profit in the use of The Whitney Hand Miller

Because it is an all around machine capable of taking both light and heavy cuts. With it you can cut gears, cams, sprockets, do keyseating, profiling, straddle milling, slotting, slabbing and countless other operations.

The *Whitney* is of so substantial a construction that it can be often used to great advantage in place of larger tools costing twice the money.

The machine is well built, inexpensive and will pay for itself in a short time.

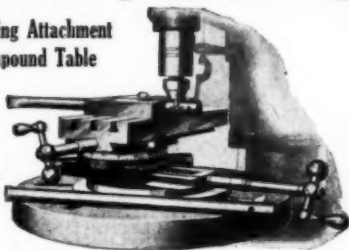
Simply drop us a postal for details.

The Whitney Mfg. Co., - Hartford, Conn.
Chains—Keys—Hand Milling Machines

Valuable in Big or Small Shop

**Davis Milling Attachment
and Compound Table**

**Converts
any Drill
Press from
14 to 42-in.
Swing in
2 Minutes**

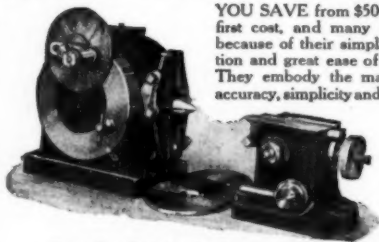


When your large millers are tied up with work, a Davis comes in handy spotting castings, milling ends of bosses, and many other odd jobs. Does 90% of the lighter jobs as well as a \$1,000 machine. The attractive prices on our air compressor, and our cylinder reamers for re boring the Ford car, will also surprise you. Circulars and prices?

Hinckley Machine Works, HINCKLEY, ILL.

They Sell and Stay Sold

Dickow's Guaranteed 10-In. Universal Index Centers



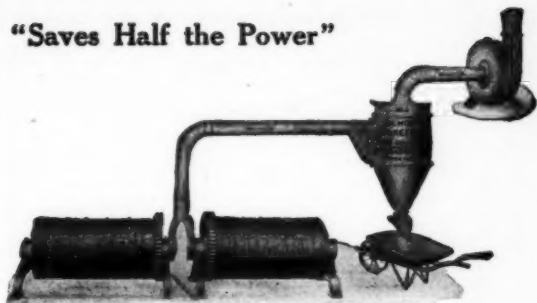
YOU SAVE from \$50 to \$125 on first cost, and many times that because of their simple construction and great ease of operation. They embody the maximum of accuracy, simplicity and durability.

Get the Original—Beware of Imitators

Sold by all dealers. Write today for particulars.

Fred. C. Dickow, 35 So. Desplaines St., Chicago, Ill.

"Saves Half the Power"



Morse "Rarefied" Dust Collectors

Reduce Shop Costs



Knickerbocker Says:

"A good thing is worth repeating. The following letter, while highly gratifying to us, is of deep interest to all users of Dust Collectors:

'This reduction in horse power is a great thing. Today we are operating the entire department with two 10s and one 5, making a total of 25 electric horse power, and before the installation of your Collectors we used 45 h. p. to do the same work.' *Name on request.*

"The Morse is operated on the 'Rarefied' or partial vacuum system. It is more efficient, uses less power, needs fewer repairs and is more durable."

*Our Booklet goes into details—write for a copy.
We will also inclose a list of prominent users.*

The Knickerbocker Company
Jackson, Mich.

Do You Use Air?

**THE POWELL
AIR GUN VALVE**

"JUST PRESS"
THE BUTTON

POWELL
AIR GUN

BUY
POWELL
AIR GUNS
KEEP
CLEAN

CLEANS
WORK BENCHES
AND
MACHINE TOOLS
MADE IN SIZES
 $\frac{1}{8}$ TO 1"

ORDER A SAMPLE
THE W.M. POWELL CO.
1200 DRAPER ST.
CINCINNATI, O.

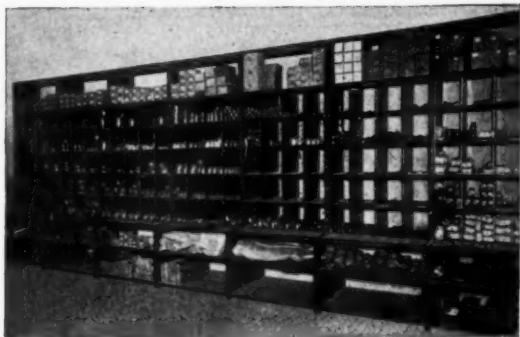



Blueprints

The Wickes

Continuous Electric.
Sells at **half** the
price. Uses **half**
the **current**
of others.
Perfect prints
up to 48" in
width and of
unlimited
length.

Wickes Bros., Water St.,
Saginaw, Mich.



You Are Invited To Investigate Terrell's Steel Equipment

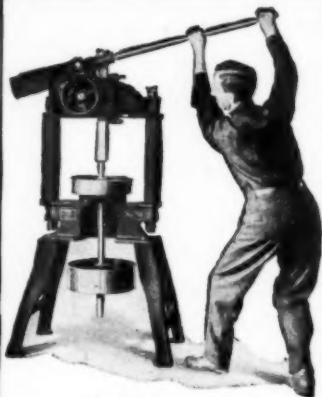
This invitation has no strings to it, and your inquiry will not obligate you in any way. On the other hand, we shall feel obligated to show you that we have something that is well worth your careful investigation.

One of the first things that we want to show you is that Terrell's Steel Equipment does not mean a big additional investment to obtain a small advantage over wood, but a very slight additional cost that is returned many fold in direct and indirect economies.

We have behind us a broad experience in this work. It is freely at your service in planning your factory equipment. We shall be glad to advise with you without obligating you to buy. That is up to you.

*This is a good time of the year to take it up
Your early inquiry will have prompt attention*

Terrell's Equipment Company
Hall & Division Sts., Grand Rapids, Mich.



No. 24 Press

Efficient Equipment Atlas Presses

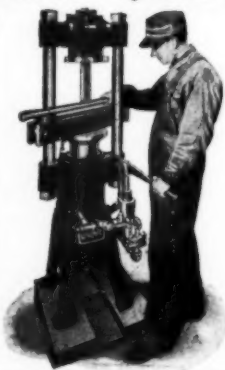
for building and repairing automobiles and general machine shop operations requiring pressure up to 25 tons and centering capacity up to 38 inches.

For driving mandrels; bending and straightening, broaching, embossing with dies, setting bushings and many other every day manufacturing jobs, there is an Atlas Press. All sizes for all purposes. *It will pay you to investigate.*

Atlas Press Co.

317 N. Park Street,
Kalamazoo, Mich., U. S. A.

Lourie Hydraulic Arbor Presses



Many Styles—Many Sizes
for
Many Purposes

Hand or Power

To force pulleys and gears on and off shafting.

To bend or straighten shafting or bars.

To punch or form metal.

Lowest Prices

ever made on hydraulic presses.

**Rapid Movement
Heavy Pressure**

*Write for Catalog of
Hydraulic Machinery*

Lourie Mfg. Co.

Springfield, Ill.

WEAVER

Forcing Press

Capacity 20 Tons

Strong—Roomy—Light



THE BALL BEARING HAND WHEEL enables the screw to be run its entire range of 12 inches in less than 10 seconds.

5-inch, 9-pound channel steel frame; 15-in. hand wheel, carried upon ball bearings. Bronze Thrust Bearings, Screw 2 in. in diameter with 3-pitch Acme thread. Range of movement, 12 in. The screw does not revolve.

Net Price (32-in. Width) \$56.00

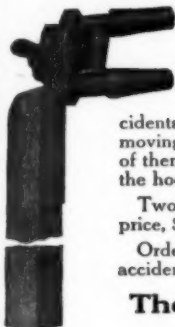
Weaver Manufacturing Co.

2179 So. 9th Street,

Springfield, Illinois

A Stick in Time—Saves 999\$

"Safety First" Belt Stick is Meant Of Course



NO MATTER whether the damage would amount to 9¢ or \$999, you do not want any pulley accidents. Our "Safety First" Belt Stick makes accidents impossible in putting belts on moving pulleys. With three rollers, two of them tapered, there is no chance of the hook getting caught.

Two sizes, 1 to 4" and 4 to 6", at one price, \$1.25 each or \$12 a dozen.

Order a few on trial *now—before* the accident—and nail down that saving.

The Ready Tool Co.
Bridgeport, Conn.

WHEN YOU INQUIRE

of advertisers herein, won't you kindly remember to say somewhere in your communication that the inquiry comes from Hitchcock's Machine Tool List? Advertisers are human; they like to know that the medium in which they spend their money is received and consulted by machinery users. Not being mind readers, they can only know this when you tell them, and if you neglect to tell them, the Tool List is deprived of credit for the service it has rendered.

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This department is exclusively for those desiring machine, press or die work on contract. Advertisements must be set in uniform style, as shown, and without other display, or any variation in arrangement or in kind or size of type. The heading must express, as nearly as possible, the particular sort of work wanted, in order that any facilities offered may be easily found. Rates: one-eighth page, three months, \$12; one year, \$40.

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We have complete facilities for stamping, drawing and forming of sheet metal. Our presses are best suited for medium and large size stampings. We are equipped for baked enameling, spot and acetylene welding. Send us sample, sketch or blue-print for estimate. **The New Britain Machine Co., New Britain, Conn.**

Dies, Tools—General Machine Work

We are equipped to render satisfactory service on all kinds of general machine work. No job too big or too difficult. Established 1876. **Chicago Die & Machine Works, 415 N. Carpenter St., Chicago, Ill.**

Brass Castings—Sand Blasted

Castings of every description made in brass, bronze, copper, aluminum and white metals, ranging in weight from 1 ounce to 1,000 pounds each. Specially equipped with power moulding machines for the handling of split, gated and plate patterns. All castings sand blasted. **Faunt Bros., 1555 Fulton St., Chicago, Ill.**

Metal Stampings—Screw Machine Products

Give us the amount of pieces required of each style. The larger the quantities the closer we can figure. We require absolutely accurate work in our own manufacturing departments, and our rigid inspection service is at your command. **Harvard Electric Co., 527 W. Van Buren St., Chicago, Ill.**

Screw Machine Products—Brass Castings

Right prices. Prompt deliveries. High-grade work. Send us samples or blue-prints for quotations. **Hill Pump Valve Co., Archer Avenue, Canal & 23rd Sts., Chicago, Ill.**

Special Machinery and Punch Press Work

Dies, tools and general machine work. Manufacturers of metal specialties. We are equipped to handle your requirements to your best advantage. **Illinois Die & Tool Works, 162 N. Desplaines St., Chicago, Ill.**

Brass, Bronze and Aluminum Castings

Castings of every description made in brass, bronze or aluminum. Brass finishing, screw machine and punch press products. Polishing and electro-plating. We are fully equipped to furnish complete brass and metal parts of every description. **Kelly Brass Works, 226-232 W. Ontario St., Chicago, Ill.**

CONTRACT WORK WANTED

Inventions Perfected

Years of experience in this work enable me to render you a satisfactory service. Special and automatic machinery a specialty. **R. D. King,** Consulting Engineer, 519 Monadnock Bldg., Chicago, Ill.

Brass Finishing—Metal Patterns—Screw Mach. Products

Special brass work of every description, metal patterns and screw machine products. With a well-lighted shop, good tools and good mechanics, we believe we can satisfy you with our service. **B. W. Pokorney & Co.,** 132-134 S. Clinton St., Chicago, Ill.

Sheet Metal Stamping, Dies and Tools

We solicit your inquiry for sheet metal stamping. Manufacturing a specialty. **Walter L. Schultz,** 29 S. Clinton St., Chicago, Ill.

General Machine Work—Dies, Tools, Models Punch Press and Screw Machine Work

We are equipped to render the best of service in dies, tools, models, punch press and screw machine work. Specialties for bicycles and motorcycles. **L. Wilson Novelty Works,** 222 S. Clinton St., Chicago, Ill.

Jigs, Dies, Tools—Stampings and Electro-Plating

Rockford Metal Specialty Co., Rockford, Ill.

Work for Your Idle Equipment

You can get it, if you will let manufacturers know just what you can do. Tell them through this department. The cost is small; the distribution covers the metal manufacturing people everywhere in the United States.

Accurate Machine Tool Work

We have a very complete outfit of modern machinery and a force of highly skilled workmen which we could make available part of the time for outside work. We would like to get in touch with reliable concerns desiring to contract for accurate machine tool work. **Campbell Electric Company,** Lynn, Mass.

Milling Machine, Screw Machine, Drill Press or Lathe Work

We can handle a large amount of small, accurate work of this character. Send samples or blue prints and we will gladly submit prices. **Bourke Machine Company,** 224 Twenty-First St., Detroit, Mich.

CONTRACT WORK WANTED

High Grade Machine Manufacturing

We are equipped to manufacture high grade specialties and intricate machines, such as typewriters, adding machines, etc. Can improve a defective design, producing a machine that will work and sell. We especially desire problems of this kind. Large facilities for small stampings. **Grand Rapids Brass Co., 66-90 Scribner Av., Grand Rapids, Mich.**

Tool and Die Work

Every kind, for which we have the machinery and skilled labor to produce results. We are equipped also for special machine work. Our particular specialty is high grade service. Can you use that kind? **Manhattan Brass Works, Grand Rapids, Mich.**

We'll Make It—Your Metal or Wood Specialty

We have unusual facilities for producing specialties in both metal and wood. Experimental and model work, pattern making. Jigs, dies, sheet metal work. Write for details. **Gas Engine & Power Co. and Charles L. Seabury & Co., Consolidated, Morris Heights, New York City.**

Sheet Metal Stamping and Manufacturing

We solicit your inquiries for light sheet metal stamping and manufacturing of specialties. **O. D. Johnson Stamping Works, Batavia, N. Y.**

Die Work

Exceptional facilities for making dies and tools and building machinery. **Titchener Iron Works, Binghamton, N. Y.**

Tools—Dies—Jigs—General Machine Work

Screw machine products. Efficient service and prompt deliveries. Send us your blueprints for quotations. **Commercial Motor Car Co., Inc., Owego, Tioga County, N. Y.**

High-Grade Castings—Machine Building

High-grade castings in iron, brass, bronze and aluminum for machine shops and manufacturers. Well equipped machine and pattern shops. Machine work and machine building our specialty. Inquiries solicited. **Briggs-Shaffner Co., Shallowford St., Winston-Salem, N. C.**

General Machine Work—Dies, Tools—Special Machinery

We are equipped to build machines of every description—sheet metal punches and dies—tools, models and jigs—long brake dies. Our object is high grade service. Send b. p. for estimate. **Canton Machine Shop, 320 Rex Ave., Canton, Ohio.**

CONTRACT WORK WANTED

Simplified Design

If your product is too complicated, you are paying a tax you can avoid. The very beginning of increased production is simple design. Let me comb over your designs. I can show results. **W. L. Schellenbach, Engineer, First National Bank Building, Cincinnati, Ohio.**

Light Milling, Drilling or Tapping Machine Work

We will be ready about July 1st to take on a large contract for the above class of work, as we have the machinery, labor, and all the necessary equipment to furnish the work at the right prices. We solicit offers. **The Burke Machine Tool Co., Conneaut, Ohio, U. S. A.**

Pressed Steel Shapes

With our heavy hydraulic presses, we can handle any pressed steel shapes using $\frac{1}{4}$ -in. stock or heavier at a very reasonable production cost. Our modern facilities also enable us to do plate or structural work upon a basis of close economy. Your inquiry is solicited. **Greenville Steel Car Co., Greenville, Pa.**

Machine Work, Welding, Brazing, Blacksmithing

I want machine work for screw cutting engine lathes, back geared drill presses, and shapers, also anything in brazing and welding, and first-class machine blacksmithing. Will make attractive prices on anything suitable for my equipment. **Wm. J. Tighe, West Chester, Pa.**

General Machine Shop and Foundry Work

Fifty years' successful operation our record. We have a large and well equipped machine shop, also foundry. Plenty skilled labor. Can handle large and small work. Would like contract for a number of large machines, also for automobile parts and other machinery. **Southern Engine & Boiler Works, Jackson, Tenn.**

Pressed and Stamped Steel Parts

It will pay you to let us figure on such pressed, stamped or drawn metal articles or parts as you may require, be they made of steel, aluminum, brass or copper. Our 15-acre plant at your disposal. Get the benefit of our "Knowing how since '81". Send samples or blue prints for estimate. **Geuder, Paeschke & Frey Co., Milwaukee, Wis., 1325-1700 St. Paul Av.**

Do You Want Contract Work?

If so, state in one of these spaces what you are prepared to do, and it will go into more manufacturing plants than if published in every mechanical journal in this country. The cost is low for a service covering metal-working plants of all kinds everywhere in the United States. **A. H. Hitchcock, Publisher, 1220-1235 Caxton Building, Chicago.**

Want More Orders?

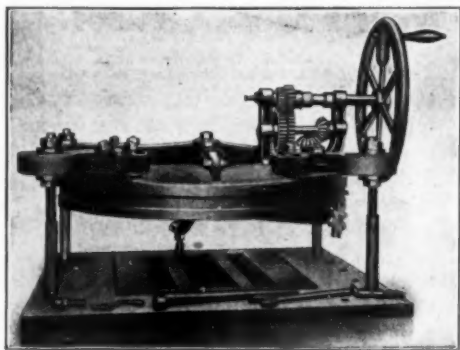
They are to be had for special contract work in machining, stamping, forging, casting, welding or any department of machine manufacturing. The problem is merely to bring the capacity and the demand for it together. If you have the idle capacity, and want work for it, the "Contract Work Wanted" department of the Tool List will help you to get in touch with machine-making plants everywhere in the United States. Its circulation among American metal working plants is country-wide. There is no other available means by which you can reach so many.

Don't let your equipment stand idle. That costs money—a lot more than it will cost you to find work for it. Write me for further information, and for a copy suggestion, which I shall be glad to make without cost or obligation.

A. H. Hitchcock, Publisher

Hitchcock's Machine Tool List
1220-1235 Caxton Building, Chicago, Ill.

Portable Rotary Planer



Planes any surface up to 42-in., diagonal measurement.

IT'S ADAPTED to a big variety of work, and one of the six sizes is sure to fit your special needs. Besides facing off locomotive valves, it is readily attached to almost any shaped piece. Allows bolts and parts to remain intact, shortens shut-downs, and saves time, money and labor. The machine work is perfect—no filing or scraping afterwards, and no breaking of port edges.

Underwood's Line of Portable Tools Now Includes:

Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; armature and axle bearing borers; pipe benders; locomotive cylinder borers; crank pin turners; reflex water glass grinders; rail saws; motors, etc.

You want shop economy? Send for our Catalog!

H. B. Underwood & Company

1016-22 Buttonwood St., Philadelphia, Pa.

Second-Hand Machinery.

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **40 cents a line**, across the page, each issue. Minimum charge, **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. No display in this department.

Write directly to the parties offering the machines for sale for prices and full descriptions. If you do not find listed what you require, use the post card inclosed with each book to make known your wants to the publisher.

FOR SALE BY

The Oakes Company,

Indianapolis, Ind.

GRINDERS.

Three Capital internal grinders, equipped with water attachment, spring collet and adjustable wheel spindle heads for tightening belt. Have been in use only since February 1, 1916.

FOR SALE BY

Russell Machine Company,

Dallas, Texas.

Die filing and sawing machine, Simplex, excellent condition.

Drill press, three-spindle sensitive, Fox, like new.

Grinder, disc, Besly, like new, with plain table and place for lever feed table; 12" ring wheel chuck; 18" disc.

FOR SALE BY

Rockford Milling Machine Co.,

Rockford, Ill.

ENGINE LATHE.

One 6"x13" Dalton screw-cutting engine lathe mounted on cabinet legs and chip pan, with 220-volt d. c. motor attached. There are also with this machine a 4", 3-jaw geared scroll chuck, a 17-32" Almond drill chuck and three No. 2 Morse taper arbors.

FOR SALE BY

Western Machinery Co.,

12 West Third Street, Cincinnati, O.

LATHES.

22"x16" Schumacher & B. ...\$ 750.00

10"x36" quick change..... 155.00

16"x8" Pratt & Whitney..... 200.00

18"x8" Pratt & Whitney.....\$250.00

12"x36" quick change..... 175.00

18"x6" Niles 110.00

MISCELLANEOUS.

Electric drills, 110 v., d. c.....\$ 22.50

Electric drills, 220 v., d. c..... 22.50

Gas engine, 6 h. p. Cook 80.00

Gasoline engine, 2 h. p., F-M. \$ 40.00

Miller, Lincoln, Reed 150.00

Motor, 5 h. p. 220 v., d. c..... 100.00

Full line grinders, polishers, chucks, tools, belting, etc.

FOR SALE BY

F. H. Kappen & Son, Agents,

93 W. Water St., Milwaukee, Wis.

Air compressor, 6x6x7, steam drive.

Blowers, pressure.

Boilers, stationary.

Bolt cutter, 1" Wells.

Cutting-off machines, Burke and

Burr.

Drill presses, sensitive.

Engines, steam and gasoline.

File sharpener, American.

Motor, 550 v., d. c., 6 h. p.

Lathes, 10x36" Shepard, 9x4 Star,

24x12 A. & C.

Press, geared, No. 6 Model H.

Perkins, 2" stroke.

Press, geared, No. 6½ Model A.

Perkins, 4" stroke.

Press, plain, No. 45 Model E.

Perkins, 1½" stroke.

Screw mche., ¾" Pratt & W., auto.

Speed lathe, 12x45 Oliver.

SECOND-HAND MACHINERY

FOR SALE BY

The H. A. Stocker Machinery Co., 566-72 W. Randolph St., Chicago
Used Machinery—Immediate Delivery.

BORING MILLS.

- 51" Bullard, one swivel and one fixed head, arranged for motor drive and equipped with motor.
52" Niles, car wheel boring mill.

DRILLING MACHINES.

- | | |
|------------------------------------|-------------------------------------|
| 22" Aurora, s. h., b. g., p. f. | 4" Baker, tapping and drilling mch. |
| 24" Hamilton, b. g., p. f. | 2 1/2" Dreses radial. |
| 25" Fitchburg, s. h., b. g., p. f. | 3 1/2" Industrial radial. |
| 26" Hoefler, b. g., p. f. | 12 spindle multiple. |
| 32" Hamilton, s. h., b. g. p. f. | 6 spindle v. c. |
| 32" Hoefler, s. h., b. g., p. f. | No. 30-C Baush 12-spindle. |
| 34" Barnes, s. h., b. g., p. f. | |

GEAR CUTTERS.

- 20" G. & E., for spur and bevel.
24"x7" Gould & Eberhardt for spur.

GRINDERS.

- No. 3 Landis universal.
14"x20" B. & S., universal.

LATHES.

- | | |
|---|---|
| 12"x 4' Hendey, c. r., q. c. g., taper. | 18"x 6' Bradford, c. r., taper. |
| 12"x 5' Davis, c. r. | 18"x 8' L. & S., pat. head, c. r., taper. |
| 14"x 5' P. & W., r. & f., taper. | 18"x12' American, c. r., q. c. g. |
| 14"x 6' Fairbanks, c. r., taper. | 18"x12' Greaves & Klusman, c. r. |
| 15"x 6' Goddard, c. r., taper. | 20"x10' Flather, c. r. |
| 16"x 6' Prentice, c. r. | 21"x12' New Haven, c. r. |
| 16"x 6' Sebastian, p. r. | 24"-40"x12' McCabe, 3-spindle, c. r. |
| 16"x 6' Walcott, c. r. | 24"x16' Schumacher & Boyce, c. r. |
| 16"x 8' L. & S., pat. head, c. r., q. c. g. | 30"x14' Reed, c. r. |
| 16"x10' Greaves & Klusman, c. r. | 32"x16' Blaisdell, c. r. |
| 17"x10' Blaisdell, c. r. | 36"x28' American, c. r. |

MILLING MACHINES.

- | | |
|---------------------------------------|----------------------------------|
| No. 12 B. & S. plain. | No. 32 Kempsmith-Lincoln, plain. |
| No. 34 Oesterlein plain. | No. 3 Cincinnati universal. |
| No. 1 1/2 Garvin universal. | No. 13 O. & W., Lincoln. |
| No. 2 Cincinnati universal. | No. 4 Becker vertical. |
| No. 2 Cincinnati vertical high power. | |

PLANERS.

- | | |
|---|---|
| Morton portable. | 36"x36"x12' Pond, one head, arranged for two. |
| 22"x22"x 6' Gray, one head. | 36"x36"x16' Sellers, one head. |
| 30"x30"x8' Woodward & P., 1 head. | 39"x39"x12' New Haven, one head. |
| 30"x30"x12' Cincinnati, two heads. | 40"x38"x14' Putnam, one head. |
| 36"x36"x12' Pond, one head, arranged for two. | 40"x40"x12' New Haven, one head, one side head. |
| 36"x36"x12' Cincinnati, two heads. | |

PRESSES.

- | | |
|---|--|
| No. 3 Delivouk & George, o. b., inc. | No. 54 Walsh, o. b., inc., geared. |
| No. 30A Perkins, o. b., inclinable. | No. 174 Consolidated, double crank. |
| No. 133 Ferracute, dbl. action, o. b., inc. | No. 25 Toledo, o. b., inc., cam drawing. |

SHAPERS.

- | | |
|-------------------------|----------------------------|
| 15" Hendey, friction. | 16" Rockford, back geared. |
| 16" Walcott. | 20" Rockford, back geared. |
| 16" Niles, back geared. | 28" Putnam. |

SCREW MACHINES.

- | | |
|-----------------------------|-----------------------|
| No. 1 Chicago automatic. | 1 1/2" P. & W. plain. |
| 1 3-16" Hartford automatic. | 1" B. & S., plain. |
| 2" Cleveland automatic. | 16" P. & W. plain. |
| 2 1/4" Cleveland automatic. | |

MISCELLANEOUS.

- | | |
|-----------------------------------|-----------------------------------|
| Bolt cutter, 1 1/2" Acme. | Lathe, No. 4 Warner & S., turret. |
| Centering machine, Whiton. | Lathe, Springfield stud (2). |
| Keyseater, No. 2 Baker. | Lathe, Blount speed. |
| Lathe, No. 2 Warner & S., turret. | |

Write for our Stock List.

SECOND-HAND MACHINERY

FOR SALE BY

Prentiss Tool & Supply Co., New York, Boston, Buffalo, Syracuse.

BORING MILLS.

10'-16' Niles vertical.	5" bar Beaman & Smith horizontal.
2-spindle Beaman & Smith horiz.	No. 1 Springfield spindle borer.

DRILLING MACHINES.

2-sp. Henry & Wright.	3' Bickford radial, motor drive.
4-spindle Woodward & Rogers.	5' American radial.
5-spindle Reed.	4' Universal radial.
4-spindle Barr.	3' & 4' Dreeses radial.
20" Barnes.	12-spindle Gardam, adjustable.
20" Superior.	D-2 Colburn high duty, (7).

GRINDERS.

No. 1 Brown & Sharpe, internal.	Misch valve grinder.
Espen-Lucas saw grinder.	3" Yankee, twist drill.

LATHES.

11"x 8' Prentice Bros.	20"x10' LeBlond.
13"x 6' Young.	20"x 8' Lodge & Davis, plain rest.
16"x12' American.	22"x10' Bogart.
18"x 6' Reed.	42"x16' Niles.
18"x 8' Rahn-Carpenter.	16"x 6' automatic threading.

MILLING MACHINES.

Pratt & Whitney, hand.	No. 5 Becker, vertical.
Lincoln type millers, (25).	No. 2 Becker, vertical.

PLANERS.

15"x15"x 3' New Haven.	24"x24"x 5' Whitcomb.
22"x22"x 5' Wheeler.	24"x24"x 8' Sellers.

PRESSES.

No. 1A Mossberg.	No. 52 V. & O.
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PUNCHES AND SHEARS.

No. 6 Hilles & Jones fish plate shear.	18" Perkins.
25" Weiss & Roos.	No. 5 New Doty, hand.

SAWS.

4" Espen-Lucas.	20" Burk, cold.
No. 17 Higley.	No. 1M Q. & C. power.

SHAPERS.

12" Traveling head.	30" Juengst, friction.
15" Juengst, friction.	24" Gould & Eberhardt.

SCREW MACHINES.

3-A Warner & Swasey.	31" Cleveland auto.
13" Gisholt.	4" National-Acme.
18"x 7' Fay & Scott.	1" National-Acme.

MISCELLANEOUS.

Air compressor, 8"x8" American.	Cutting-off machine, 3" Davis.
Bending machine, 30 ton Watson Stillman.	Gear cutter, 64x16 G. & E.
Blower, pressure, No. 4 American.	Gear tester, Gleason.
Broaching machines, Nos. 2, 3 and 4 LaPointe.	Keyseater, No. 1 Davis.
	Pipe machine, 6" Armstrong.
	Tapper, 4" Baker Bros.

SECOND-HAND MACHINERY

FOR SALE BY

New York Machinery Exchange, 50 Church St., New York City

All in stock in Jersey City.

MILLING MACHINES.

No. 2 Cincinnati, universal, Ingersoll, slab, platen 3'x12', 3 hds.
No. 1-B Milwaukee plain.
Newton vertical, 48" circular table.
Newton slab, platen 18"x10".
No. 1 Cincinnati plain.
No. 2 Kempsmith plain.
No. 9 Kempsmith plain.

No. 1 Brainard, plain, table 13"x48".
Garvin plain, Nos. 4, 4, 3.
No. 1 Pratt & Whitney plain, (2).
Detrick & Harvey milling, drilling and boring machine.
No. 4 Garvin profiler.
No. 1 Garvin 2 spindle profilers, (2)

TURRET LATHES AND SCREW MACHINES.

No. 5A Potter & Johnston automatic turret lathes, (2).
2"x24" Jones & Lamson flat turret.
48"x10" Bullard, friction head, triple geared turret.
48"x8" Bridgeport bk. geared turret.
32" Bridgeport turret, dbl. bk. grd.
30"x10" Morse turret, friction head.
22" Garvin forming machine, wire feed, 24" capacity.
2" Cleveland full automatics, (3).
14" Hartford full automatic.

14" Cleveland full automatics, (6).
1" Greenfield plain automatics, (3).
1" Cleveland full automatic, (2).
1" Cleveland full automatic.
7-16" Brown & Sharpe full auto.
Jones & Lamson hand screw machine, 14" capacity.
Pratt & Whitney hand screw machine, 4" capacity.
Warner & Swasey hand screw machine, 9-16" capacity.
Garvin hand screw machine, 4" cap.

MISCELLANEOUS.

Bolt cutter, 34" Acme.
Bolt cutter, 2" Merriman.
Bolt cutter, 14" Detrick & Harvey.
Boring mill, 62" Baush vert., 2 hds.
Boring mill, 5' Bement vertical.
Boring mill, 60" Bement-Miles vertical, 2 heads.
Boring mill, 50" B-Miles car wheel.
Boring mill, 40" Binase, 3" bar.
Boring mill, 36" Bridgeport, 2 hds.
Boring mill, 36" Bullard, 2 heads.
Boring mill, 30" Baush, turret head.
Boring mill, Beaman & Smith 2-spd.
Cutting-off machine, Bement-Miles, geared head, 9" capacity.
Cutting-off machine, 14" Hurlbut-R.
Gap stake riveter, 56" Bliss.
Gear cutter, 80" Bliss.
Gear cutter, 42" Blaisdell.
Gear shaper, 36" Fellows.
Grinders, No. 1 Landis internal, (4).
Grinder, 12"x96" Landis plain.
Grinder, No. 4 Landis universal.
Grinders, Cincinnati universal cutter, (2).
Grinder, No. 1 Brown & S. internal.
Grinder, No. 3 Brown & Sharpe new universal cutter and reamer.
Grinder, No. 2 Garvin cutter and reamer.
Grinder, 20"x12" Brown, roll.
Hammer, steam, 1000 lb. Morgan.
Hammer, board drop, 800 lb. Bliss stamping.
Hammer, power, spring, 125 lb. Scranton upright.
Hammer, trip, 85 lb. Kane & Roach.
Hammer, 100 lb. Hackney.
Keyseater, Baker Bros. 24" stroke.

Keyseater, Baker Bros. Colburn, 20" stroke.
Keyseaters, No. 2 Davis, (2).
Keyseater, No. 2 Mitts & Merrill.
Pipe machines, 6" Curtis & C., (3).
Planer, 16" Hilles & Jones, plate.
Planer, 62"x60"x15" Sellers, 4 hds.
Planer, 60"x30"x13" Pond 2 heads.
Planer, 55"x45"x14" Lincoln-S., 4 hds.
Planer, 45"x44"x12" Niles, 2 heads.
Planer, 44"x44"x16" Niles.
Planer, 42"x30"x12" Sellers, 2 hds.
Planer, 42"x10" New Haven.
Planer, 30"x30"x16" Harrington.
Planer, 28"x28"x7" Putnam.
Planer, 24"x24"x6" Powell.
Planer, 24"x24"x6" Fitchburg.
Planer, 22"x22"x5" Whitcomb.
Press, No. 4 Bliss geared double crank, weight 11,000 lbs.
Press, No. 2 Bliss double crank, weight 5,000 lbs.
Press, DG-56 Ferracute redrawing, 4" stroke, weight 13,000 lbs.
Press, PG-6 Ferracute punching, stroke 14", weight 12,000 lbs.
Press, Farrell 2" stroke.
Press, No. 1 Bliss, straight side, 8" str.
Press, 350-ton Hoe, hydraulic.
Press, 200-ton Robertson, hydraulic.
Press, 100-ton Sellers, hyd. wheel.
Punch, Bement, 31" cap.
Punch, Cockburn & B., cap. 1" in 1".
Punch, Kling Bros., 24" throat.
Punch, Reed Cleveland, 22" throat.
Punch & shear, Cleveland double end, 26" throats.
Punch & shear, Bass double end 20" throats.

SECOND-HAND MACHINERY

New York Machinery Exchange—Continued

Punch & shear, Wilson-Kalamazoo double end, 6" throats.
Punch & shear, No. 2 Long & Allstatter, double end, 12" throats.
Radial drills, 6" Pond plain.
Radial drill, 5" Bickford semi-univ.
Radial drill, 3" Bickford plain.
Radial drills, 3 1/4" Gang. (2).
Radial drill, 2 1/2" Fosdick plain.
Radial drill, 2 1/2" Gardam plain.
Shaper, 30" Morton draw cut.
Shaper, 24" Smith & Mills crank.
Shaper, 24" Gould & E. crank.

Shaper, 21" new Hanover crank.
Shaper, 16" new Hanover crank.
Shapers, 16" new Ohio crank.
Shaper, 15" Gould & E., crank.
Shear, dbl. angle, Sellers, 8x8x1" cap.
Shear, rotary splitting, 8" Lennox, split 16" plates.
Shear, rotary splitting, Lennox, split 12" plates.
Shear, Bement plate iron, 26" throat.
Shear, style D Long & Allstatter, capacity 3 1/2" round stock.
Tapping machine, 16" Baker Bros.

FOR SALE BY

Federal Machinery Sales Company, 14 N. Jefferson St., Chicago

BORING MACHINES.

No. 0 Detrick & Harvey horizontal boring and drilling machine, floor type, universal table, 48" square, bar 3 1/2" dia., complete with d. c. motor attached.
No. 1 Barrett horizontal boring machine, 3 1/2" bar, two facing heads.

UPRIGHT DRILLS.

18" Silver post drill, with round table, plain lever feed.
20" Kern stationary hd, upright drill, wheel and lever upright belted power fd.
2-spindle Henry & Wright 14" swing, ball-bearing sensitive drill.
5-spindle Taylor & Fenn ball-bearing sensitive drill.

GRINDERS.

No. 38 Safety Emery Wheel Co. heavy grinder, 3-spindle.
No. 14 Gardner improved dbl. disc grinder, wheel press and four steel discs.
Norton 18"x30"x96" plain gap grinder, with standard overhead drive.

HAMMERS.

50 lb. Williams & White belt lift hand drop hammer.
125 lb. Bradley compact rubber cushioned hammers.

KEYSEATERS.

No. 1 Davis, tight and loose pulley countershaft.
No. 2 Davis key-seater, with countershaft.
No. 2 Mitts & Merrill, adjustable stroke, maximum 13".

LATHES.

15"x8" Barnes engine lathe, rise and fall rest.
17 1/2"x8" Prentice, engine lathe, 4-step cone.
20"x10" new Reed engine lathe, 4-step cone, single back gears.
26" swing x 12" bed, Monarch quick change gear engine lathe, 5-step cone.
19-38"x8" Fay & Scott extension gap lathe, triple gear into face plate.
48"x26" Pond triple geared engine lathe, swings 52", internal grd. face plate.

MILLING MACHINES.

No. 2 Pratt & Whitney, milling machine with plain head.
Owen duplex, automatic table feed 26 1/2".
Cincinnati semi-automatic duplex.

PLANERS.

18"x18"x40" Putnam, one head on cross rail.
22"x22"x4" Pond, one head on cross rail.
22"x22"x4" Wheeler, one head on cross rail.
30"x30"x8" Whitcomb, one head on cross rail.
48"x48"x16" Sellers planer with four heads, all power feed, spiral drive.

PRESSES.

No. 3 Michigan plain inclinable.
Double crank inclinable press, fly wheel 38"x5 1/2", stroke 1".
No. 58 Toledo upright double column press, 5" stroke.

TURRET LATHES AND SCREW MACHINES.

1" American Tool Works friction head screw machine.
2 1/2"x26" Greenlee flat turret lathe, with bar equipment.
2 1/2"x26" Cincinnati flat turret lathe, with plain chucking equipment.
2 1/2"x26" Acme, with plain and bar equipment.
25" American Conradson head turret lathe.

Send for Our Complete List.

SECOND-HAND MACHINERY

FOR SALE BY

Wayne Machinery Co., Taylor St. & L. E. R. R., Fort Wayne, Ind.

Bolt cutter, 3" Acme.
Boring tool, No. B-3 Armstrong,
3-tool.
Brake, 8" J. M. Robinson.
Drill, No. 4 Fox, multiple head.
Drill, 23" Springfield, b. g., p. f.
Grinder, drill & emery, W. & M.
Hack saw, No. 4 Racine.
Lathe, speed, 10"x4" Reed.

Lathe, 20"x12" Shepard.
Lathe, 12"x5" C. E. Mann.
Lathe, 18"x5 1/2" American No. 1, brass.
Miller, No. 3 Brainard, 12" feed.
Riveter, No. 530 Prouty.
Shaper, 16" Hendey.
Tire welder, No. 4 L. & A.
Welding machine, No. 6-A Toledo
electric butt welder.

New tools for any requirement.

FOR SALE BY

Neidow & Payson Co.,

9 So. Clinton St., Chicago, Ill.

Automatics, 1/2" to 2".
Boring and turning mills, 41" to 100".
Borer, 2-spindle cylinder.
Cold saw, 26" blade.
Drills, 8" Niles radial.
Drills, multiple spindle and sensitive.
Gear hobber, 18" Grant-Lees.
Gear cutters, G. & E. and B. & S.
Grinder, 10"x36" Landis.
We have several 24" extra heavy duty engine lathes; immediate delivery.

Hammer, board, 1200 lb. B. & S.
Lathe, 9" to 90" swing.
Lathes, 2" and 3" J. & L.
Miller, No. 3 Brainard plain.
Miller, P. & W., spline.
Miller, 72"x48"x10", slab.
Planer, 30"x5" Whitcomb, 2 heads.
Press, screw, pwr., No. 2 Amer. Can.
Press, 200 ton Niles car wheel.

FOR SALE BY

McCoy-Brandt Machinery Company

Office and Warehouse 216-218 Penn Ave., Pittsburgh, Pa.

LATHES.

20"x 8" Porter, p. r., s. s.
18"x 6" L. & S., geared head, q. c.
16"x 8" L. & S., q. c., h. s., c. r.
16"x 8" Davis, p. r., h. s.

15"x 8" Johnson, c. r., s. s.
15"x 6" Blaisdell, h. s.
12"x 5" Davis, c. r., h. s.

MISCELLANEOUS.

Boring mill, 60" Baush, 2 heads.
Boring mill, 72" Bickford, 2 heads.
Boring mill, No. 5 Barrett horiz.
Bolt cutters, Acme, 2" & 3" sgl. hd.
Bulldozers, Nos. 1, 2, 3, 4 and 12.
Compressor, 10x12x10", Laidlaw stm.
Compressor, belted, 12x10" Bury,
196 cu. ft.
Compressor, belted, 12x10" Curtis,
280 cu. ft.
Compressor, belted, 13x12" Nagle,
300 cu. ft.
Compressor, 23 & 14x20", 1482 cu. ft.
Compressor, 18x26x24", 1357 cu. ft.
Compressor, 22 x 24 & 14 1/2 x 24",
1444 cu. ft.
Crane, 2-ton, 220 v., d. c., 28' span.
Crane, 7-ton, 220 v. d. c., 39' 6" span.
Crane, 8-ton, 220 v., d. c., 28' 10" span.
Crane, 10-ton, 220 v., d. c., 60' span.
Cranes, 10-ton, 220 v. d. c., 72' 6" span (2).
Crane, 15-ton, 220 v. d. c., 40' span.
Crane, 30-ton, 220 v. d. c., 42' 4" span.
Crane, 10-ton, 110 v. d. c., 48' span.
Crane, 10-ton, 110 v. d. c., 28' 11" span.
Drill presses, 20" & 31", sliding hd.

Gas engine, 30 h. p., 2 cyl., vertical.
Gas engine, 35 h. p., 2 cyl. vertical.
Generators, 3, 22 1/2, 25, 75 k.w., 110 v.,
d. c.
Generator, 30 k.w., 125 v. d. c., st. eng.
Hammer, 75 lb. Modern power.
Hammer, 300 lb. Johnston & J.
Hoist, d. c., s. d., 8x10" reversible.
Keyseater, No. 1 Davis.
Motor, 7 1/2 h. p., 2-60-220, 1700 r. p. m.
Motors, 20 h. p., 2-60-220, 900 r. p. m.
Motors, 5, 6, 30 h. p., 110 v., d. c.
Motor, 100 h. p., 220 v., d. c., 780 r. p. m.
Motors, 10 and 55 h. p., 500 v., d. c.
Pipe machines, 2, 4, 6, 8, 10 and 12".
Punch & shear, 6" tht. Badger, 4x3".
Punch & shear, 10" tht. cap. 1 1/2" thrul".
Punch, horiz., 10" throat, cap. 1x1".
Punch & shear (sgl.) 48" cap. 4x1".
Press, auto. roll feed, 4000 lb., s. s.
Press, equal No. 19 Bliss, o. b. i.
Rolls, bending, 72" cap. 3-16".
Rolls, angle, cap. 3x3 1/2".
Shear, rotary bevel Lennox No. 2.
Shear, butterfly, 8" knives.
Straightening rolls, No. 0 H. & J. 56".

SECOND-HAND MACHINERY

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

14"x6" Blaisdell, c. r.	17"x8" Perkins, c. r.
14"x6" Reed, r. & f. rest, (2).	18"x6" Fitchburg, c. r.
14"x6" Blaisdell, p. r.	20"x6" New Haven, c. r.
14"x6" Hendey, r. & f. rest.	24"x8" New Haven, c. r.
16"x6" Lathe & Morse, r. & f. rest.	18"x8" American T. Wks., c. r., q. c. g.
18"x8" Davis, c. r.	16"x8" Davis c. r. & t. a., q. c. g.
22"x8" Hamilton, c. r., q. c. g.	

FOX LATHES.

14"x6", square arbor, set-over tail-stock, (2).	20" American, universal turret.
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TURRET LATHES.

18" Lodge & Davis, gear feed head, automatic chuck.	No. 7 Bardons & Oliver, gear feed head, with vertical forming attachment.
No. 4 Warner & Swasey, gear feed head, p. b.	14" Lodge & Davis, plain head.

MILLING MACHINES.

No. 8 Brainard, Lincoln type.	No. 12 Brown & Sharpe, plain.
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UPRIGHT DRILLS.

20", w. & l. fd., s. b., (4).	20" b. g. & p. f., s. b., (4).
Sensitive drills, (2).	

MULTIPLE DRILLS.

Detroit 5-spindle horizontal semi-automatic.	3 and 6-spindle sensitive.
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PLANERS.

24"x24"x5' Pond, spur.	20"x20"x3', spur.
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PUNCH PRESSES.

No. 24 V. & O., plain inclinable.	No. 101 V. & O., plain inclinable,
No. 18 Bliss plain inclinable.	8" stroke.

BORING MILLS.

60" Industrial, single head, vertical.	36" Barrett, horizontal, with 5" bar.
60" Bickford, 2 swivel heads.	

GRINDERS.

Warner & Swasey cock grinders.	14" & 20" wet grinders, (5).
No. 60 Heald, cylinder.	

SHAPERS.

16" Fitchburg, traveling head.	15" Walcott, geared.
20" Hendey, friction.	20" Walcott, friction.
12" Kelly, plain crank.	

SCREW MACHINES.

14" Cleveland automatic, 3-hole.	2" Hartford automatic, 5-hole.
2" Cleveland automatic, 5-hole.	No. 60 Brown & Sharpe automatic.
No. 0 Brown & Sharpe automatic.	

MISCELLANEOUS.

Bending roll, 10x20" Bertsch, heavy, triple geared.	Pipe machine, 6" Curtis & Curtis.
Bolt cutter, 14" Acme, single head.	Pipe machine, 4" Williams.
Bolt cutter, 14" Wells, single head.	Profiler, No. 2 Garvin, 2 spindle, Wesson drive.
Cold saws, 12" Burke, (2).	Pulley lathe, 36" Stevens, with boring attachment.
Grinder, 16x50" Springfield, planer type.	Radial, 6" arm Cleveland P. & S. Works, wall type.
Keyseater, Morton, draw stroke.	
Pipe machine, 2" Jarecki.	

SECOND-HAND MACHINERY

FOR SALE BY

W. L. Perkins, Jr.,

30 Church St., New York

LATHES.

24"x10' Putnam, c. r., cross feed.
26"x14' Putnam, c. r., cross feed.
28"x14' Putnam, c. r., cross feed.

32"x10' Putnam, c. r., cross feed.
70" Sellers d. h. wheel lathe.
80" Bement d. h. wheel lathe.

PLANERS.

30"x30"x10' Chandlers, 2 heads.
32"x32"x8' Pond, 2 heads.

36"x36x10' Woodward & P., 2 hds.
60"x60"x14' Sellers, 2 heads.

RADIAL DRILLS.

5' Dreses, tapping.
6' Bickford, tapping.

7' Baush, tapping.
8' Pond, tapping.

FOR SALE BY

J. L. Osgood,

45 Pearl St., Buffalo, N. Y.

Cutting-off machine, 2" H. & R.
Cylinder borer and grinder, 24"
Davis, jigs and cutter bars.
Disc grinder & press, No. 6 Gardner.
Drill, 14" Reed, and chuck.
Drill, 20" Snyder, p. f. and a. s.
Drills, 20" Davis, b. g., a. f., (2).
Lathes, 11"x4' Reed, r. & f. rest,
chuck fitted.
Lathe, 12"x5' Robbins, r. & f. rest.
Lathe, 14"x6' Reed, r. & f. rest.
Lathe, 18"x6' Hamilton, c. r., chuck
fitted.
Lathe, 18"x12' Greaves & K., c. r.,
chuck fitted.
Millers, hand, Whitney, new (2).
Miller, Lincoln, 12" Cincinnati.

Piston & ring mch., Gridley, motor.
Power press, Dodge, 1" throat, 24"
fly wheel.
Screw machines, hand, B. & S. No. 0,
new, (2).
Screw machines, No. 1 B. & O.,
13-16" cap. (2).
Screw machines, No. 2 B. & O., 1'
cap., (6).
Screw machines, No. 4½ B. & O., 14"
cap., (6).
Shaper, 16" Gould & Eberhardt.
Squaring shear, 30" Niagara, foot.
Testing machine, 100,000-lb. Olson.
Thread miller, 6"x48" P. & W.
Turret lathe, 20"x8' Fay & Scott.

FOR SALE BY

Frank Toomey, Inc.,

127-131 N. Third St., Philadelphia, Pa.

LATHES AND TURRETS.

26"-48"x14' new dbl. spdl. McCabe
lathes, heavy pattern, (11).
26"-48"x18' new dbl. spdl. McCabe
lathes, heavy pattern, (2).
36"x20' Fitchburg.
28"x15' Harrington.
20"x 8' Prentiss.
20"x10' Flather.
19"x 8' Rahn-Mayer.
19"x10' Rahn-Mayer.
19"x 8' new Sidney, q. c. g., swing
21", (3).
17"x 8' new Sidney, q. c. g., swing
19", (3).

17"x 8' new National, q. c. g., (9).
16"x 5' Blaisdell.
15"x8' Carroll-Jamieson, q. c. g.
14"x10' Prentice, t. a.
13"x7½" new Carroll Jamieson.
13"x5½" new Carroll-Jamieson.
12"x25" bet. center, new Shepard (4).
40" swing Conradson semi-automat-
ic turret, 34" hollow spindle.
2"x24" Jones & Lamson, (2).
14"x 5' Bridgeport turret lathe.
¾" P. & W. hand screw machine.
¾" Hartford auto. screw machine.

MISCELLANEOUS.

Boring mill, car wheel, 36" Baker.
Drill, 24" Sibley & Ware.
Drill, 28" Currie & Snyder.
Drill, 36" Baker.
Drill, vertical, 30" Baush, 1 tur. hd.
Hammer, steam, 250 lb. Niles.
Hammer, steam, 600 lb. Morgan.
Hammer, steam, 800 lb. Wood.
Miller, No. 23 Brown & Sharpe.
plain table 50"x10".

Miller, No. 3½ Fox, vertical attach-
ment, index head.
Planer, 18"x18"x 5' Pond.
Planer, 22"x22"x 6' Powell.
Planer, 33"x33"x12' Woodward.
Radial drill, 30" Gang.
Radial drill, 42" Betts.
Ring grinder, wet, No. 210 Heald.
Shaper, 18" Bement, traveling head.
Shaper, 24" American, b. g.

SECOND-HAND MACHINERY

FOR SALE BY

The Greaves-Klusman Tool Co., - - Cincinnati, Ohio

GEAR CUTTER.

One new No. 3 Cincinnati gear cutter, 26"x10", with full standard equipment for cutting spur gears; now ready for delivery. Machine has never been under belt.

FOR SALE BY

Simmons Machine Co., Inc., 981-985 Broadway, Albany, N. Y.
New York Office, 902 Singer Building

Machinery for Immediate Delivery.

NEW.

Drill, No. 28 Canedy-Otto sensitive.....	\$ 25.
Grinders, cutter-reamer, No. 6 Universal, each.....	450.
Lathe, 13x6 South Bend, hl. spindle, compound rest, power cross feed.....	285.
Lathe, 11x5 Meyer, hollow spindle, compound rest, power cross feed.....	235.
Lathe, No. 4 Stark precision bench lathe, with screw cutting attachment, September delivery.....	325.
Lathe, 16x8 South Bend, hollow spindle, comp. rest, power cross feed.....	390.
Lathe, 14x6 Neat, qck. chg. gear, dbl. bk. grd., comp. r., pwr. cross fd.,.....	535.
Lathe, 18x8 Cisco, qck. chg. gear, hol. spdl., comp. rest, pwr. cross fd.,.....	890.
Lathe, 14x6 Hamilton tool room, complete with taper attach., pan bed.....	915.
Miller, No. 2 Garvin hand miller.....	250.
Miller, No. 1 Bickford hand miller.....	300.
Miller, No. 1 Standard hand miller with vise.....	312.
Miller, No. 2 Sloan-Chase tool room bench, with index head and vise.....	550.
Miller, plain, No. 1 Kempsmith miller, October delivery.....	850.
Miller, plain, No. 2 Kempsmith miller, September delivery.....	950.
Miller, No. 1 Kempsmith universal, October delivery.....	1050.
Miller, No. 24 Oesterlein, heavy plain miller.....	1070.
Miller, No. 2 Kempsmith universal, October delivery.....	1300.
Miller, No. 3 Kempsmith plain miller.....	1350.
Miller, No. 34 Oesterlein, heavy plain, August delivery.....	1500.
Miller, No. 3 Kempsmith universal, October delivery.....	1525.
Shaper, 20" Ohio back geared, complete.....	650.
Shaper, 16" American, high duty, motor drive 220-440 v., 60 cyl., 3 ph.....	850.
Shaper, 25" Smith-Mills, back geared, complete.....	900.

USED.

Borer, Putnam wheel, fine cond. \$ 300.	Lathe, 34x22 New Haven, blocks to 44".....\$ 900.
Cutting-off mch. 3" Hurlbut-K. 300.	Lathe, 40x14 Harris, complete with chuck..... 800.
Drill, 20" Canedy-Otto, power, 105.	Lathe, 60x10 New Haven, boring-f..... 850.
Drill, Dwight-S. 3 spindle hd. 110.	Lathe, 18x10 Am., complete ck. 850.
Drill, 14" Dwight-S. 4 spindle 120.	Lathe, 26x10 Pond, extra hvy., 1000.
Drill, 24" sliding head..... 150.	Lathe, 22x8 Am., q.c.g., d.b.g. 1050.
Drill, 20" Aurora q. c. feed..... 150.	Lathe, 30x12 Lodge-S., single pulley drive, triple geared... 1250.
Drill, 24" Sibley, upright..... 180.	Lathe, 66x16 Pond, 4 1/2" hole.. 2000.
Drill, No. 51 Canedy-Otto 3 1/2" arm (new)..... 240.	Miller, Garvin duplex..... 800.
Gear cutter, 64x16 Gould-E..... 1500.	Miller, No. 284 Bement, Lincoln 250.
Lathe, 22x8 C.-G., p. c. f., p. r. 165.	Miller, No. 7 Becker-Brainard, Lincoln..... 475.
Lathe, 21x5 1/2 Barnes, swivel r., 200.	Miller, No. 2 Cincinnati univ., 1150.
Lathe, 28x10 Ames, p. c. f..... 290.	Planer, 30x30x8 Blaisdell..... 150.
Lathe, 28x10 Ames, p.c.f., chuck 300.	Planer, 24x24x6 Lathe-Morse, with Adams universal milling head and cutter..... 600.
Lathe, 18x8 Porter, c.r., p.c.f., ck. 400.	Planer, 24x24x6 Gray..... 675.
Lathe, 30x16 New Haven, plain rest, power cross feed, chuck 450.	Planer, 30x30x16 Bement, extra heavy..... 750.
Lathe, 30x9 New Haven, turret tool post..... 460.	Planer, 24x24x8 Cinti., 1 head.. 1000.
Lathe, 13x6 Worcester, c.r., p.c.f. 485.	Shaper, 10" Hendey friction... 125.
Lathe, 20x8 Pond, c.r., p.c.f., h.s. 550.	Shaper, Juengst crank shaper. 275.
Lathe, 16x6 L.-S., 5-step c. 2B 560.	
Lathe, Potter-Johnson semi-auto, turret, 3" hollow spdl... 650.	
Lathe, 22x12 Fifield, c.r., p.c.f., 650.	
Lathe, 14x5 L.-S., patent head. 660.	
Lathe, 22x10 Niles, complete... 775.	

SECOND-HAND MACHINERY

FOR SALE BY

The Bicknell Mfg. & Supply Co.

Janesville, Wis.

Bars, cold rolled and mild.
Drills, 20" Hoefler.
Drills, 6-spindle, 4".
Drills, 6-spindle Garvin.
Engine, 80 h. p., Ames atuo., and 50 k. w. direct connected generator, switchboard, etc.; never used; cost \$2600.; price, \$1500.
Engines, Corliss, 60 to 300 h. p.

Engines, 12x12 auto., 50 k. w. gen.
Keyseater.
Lathes, 14" to 24".
Lathes, new, 18", 28" 37".
Mch. bolts, 3" and 1"x25 & 27"(300).
Millers, slab, Garvin, Grant.
Screws—cap and set screws.
Shaper, 20", geared, shifting belt.
Steel (hi-speed tool) and cutters.

FOR SALE BY

Peninsular Machinery Co.,

110 Beaubien St., Detroit, Mich.

Beader, No. 024.
Beader, No. 8 Niagara, power.
Chuck, 24" 4-jaw. Ind.
Drill, 14" single spindle sensitive.
Drill, 12" Barr sensitive.
Drill, 4-spindle Bickford.
Drill, 14" Allen sensitive.
Drill, 24" heavy duty.
Forming roll, 14 ga. 48" long.
Grinder, emery, No. 3 Blount.
Grinder, cutter, No. 1 Garvin.
Grinder, twist drill, New Yankee.
Groover, No. 3 Niagara.
Hack saw, No. 11 Millers Falls.
Key lathe, 12" Cobb, double end.
Lathe, 14"x8" Fairbanks, c. r.

Lathe, 19"x10' LeBlond, automobile.
Lathe, 20"x8' LeBlond.
Miller, hand, No. 1 Whitney type.
Miller, Thurston die miller.
Miller, No. 14 LeBlond universal.
Press, double acting, double plunger, cam actuated, hold down 3" stroke, for fibre can work.
Screw machine, plain, No. 6 Foster.
Screw machine, plain, No. 1 Foster.
Screw machine, grd., No. 5 Foster.
Screw machine, grd., No. 10 Foster.
Speed lathe, 11"x4' Blount.
Speed lathe, 13"x5' Blount.
Speed lathe, 16"x8' Blount.

FOR SALE BY

The Osborne & Sexton Machinery Co.,

Columbus, Ohio.

LATHES AND TURRET LATHES.

12"x 6' Fairbanks, comp. r., h. s.
13-15-16 and 18 O. & S., new.
14"x 6' Lodge & Shipley, h. s., c. r.
14"x 6' Blaisdell, taper, (2).
16"x 6' Blaisdell, overhauled.
18"x 6' Gray, h. s., comp. rest.
18"x10' Barker, h. s., comp. rest.
15"x 6' Hamilton, h. s., d. b. g., new (5).
20"x 8' Hamilton, h. s., d. b. g., q. c., new, (3).

20"x10' Putnam, overhauled.
21"x14' Fifeid, comp. rest.
22"x12' Mueller, h. s., comp. rest.
22"x10' Hamilton, 3-step, new.
23"x10' Blaisdell, overhauled.
13"x 6' Fox universal lathe.
16"x 6' back geared turret.
18"x 6' Mueller, turret on shears.
2"x24" Jones & Lamson.
1" Garvin hand screw machine.

SHAPERS AND PLANERS.

16" Hendey tool & die shaper.
22" Walcott geared shaper.
20"x20"x 4' Industrial.

20"x20"x 4' New Haven.
30"x30"x 7' New Haven.
30"x30"x12' Pond planer.

MISCELLANEOUS.

Buffing lathes, all sizes.
Centering machine, 6" P. & W.
Cut-off machine, 3" Davis.
Die miller, No. 1 Thurston.
Drills, flexible shaft (2).
Drills, hi-speed, 23-32"—32 tapered.
Drills, sensitive, 1, 2, 3 and 4 spindle.
Drill, Avey 3-spindle high speed.
Drill, 32" sliding head.
Gas engines, 4 to 150 h. p.
Grinder, tool, Gleason.
Hammer, power, 100 lb. upright.
Hammer, drop, 750 lb. Toledo.

Miller, B. & S., small, power.
Miller, univ., Kempsmith No. 2.
Miller, plain, Garvin No. 3.
Pipe machines, 2" (3).
Radial drill, 30" Keystone.
Radial, 5' Universal.
Riveter, 4" Shuster, 20" throat.
Rolling mill, 22"x13" Toledo.
Shear, squaring, 26" gap, 15" cap.
Straightening rolls, 30".
Tapper, vertical, Garvin No. 1.
Threading mch., Webster & Perks.
Variable speed transmission, Reeves.

SECOND-HAND MACHINERY

FOR SALE BY

L. F. Seyfert's Sons, Inc.,

437 N. 3rd St., Philadelphia, Pa.

Bending rolls, 8 & 10' Hilles & J.
Brake, 10' Ohl, cap. No. 10 steel.
Hammer, 175 lb. belt drop, Farrell.
Hammer, helve, 15 lb. Bradley.
Hammer, steam, 250 lb. single frame,
Erie.
Hammer, power, 30 lb. No. 0 Cham-
pion.
Lathes, 26" x 12' Draper and Davis.

Lathe, 24" x 14' Johnson, (2).
Lathe, 23" x 13' Blaisdell.
Lathe, 22" x 10' American, q. c. g.
Miller, slab, 24" x 24" x 6' Ingersol.
Planer, 22" x 22" x 5' Whitcomb.
Press, No. 3 Philadelphia, fly-wheel.
Press, hydraulic, 350-ton Hoe.
Saw, No. 2 Newton combination
type.

SPECIAL.

33 Polishing machines Diamond, spindles average 48" in length, with bases
and t. & f. pulley.
7 No. 2 Racine Bulldog high speed metal saws, used but few months—good
as new.

FOR SALE BY

Niles-Bement-Pond Company,

111 Broadway, New York.

Located at Chicago, Boston and New York.

LATHES.

12" x 5' speed lathe.
16" x 8' VonWyck, q. c.

40" x 16' Bement, c. r., old style.

AUTOMATIC SCREW MACHINES.

4" Acme old style 4-sp. automatic.

4" Spencer single turret, auto.

BORING AND DRILLING MACHINES.

36" Brown & Sharpe turret borer.
34" spindle Niles horizontal boring
and drilling machine.

3" spindle Pond horizontal boring
and drilling machine, 220 v. motor.

SHAPERS.

10" Miles old-style shaper.
12" Bement old-style shaper.

15" Steptoe shaper.
24" G. & E. shaper.

PLANERS.

22" x 22" x 6' Harrington hd. planer.
24" x 24" x 6' Bertram.
26" x 26" x 7' Niles, 1 head.
26" x 23" x 16' Miles, 2 heads.

30" x 30" x 11' Niles, 1 head.
42" x 42" x 20' Miles, 2 heads.
48" x 48" x 20' Sellers, 2 heads.

DRILLING MACHINES.

13" 1 spindle sensitive, 110 v. motor.
14" 3 spindle Henry & Wright.
17" 4 spindle gang, Jones & Lamson.
30" & 36" Gould & Eberhardt, sliding head.
No. 14 Pratt & Whitney multiple, 1" capacity.
No. 10 Pratt & Whitney multiple, 14" capacity, 10 spindles.
No. 1 Pawling & H. horizontal, belt drive.
Dallet and Prentice portable drills.

RADIALS.

24' Grant, semi-radial.
4' Barr, old-style.

5' Niles, plain.
6' Niles, semi-universal.
Putnam heavy axle lathe.

RAILROAD MACHINERY.

Bement double axle lathe.
Niles double axle lathe.

BOLT CUTTERS.

14" Landis.
24" National.

4" Acme.

GRINDERS.

12x96" Springfield.
Automatic grinder, for saw blades.

Besly disc grinder.

MISCELLANEOUS.

Cut-off machine, 44" Starr.
Engine, 500 h. p.
Engine, 100 h. p.
Engine, 75 h. p.
Grinder, No. 14, 26" G Besly, disc.

Grindstone, 34", iron frame.
Pipe machine, 8" Cox.
Motor, 80 h. p., 220 v., d. c., North-
ern, 575 r. p. m.
Rolls, 8" x 2' hand power.

SECOND-HAND MACHINERY

FOR SALE BY

Clark Machinery Co.,

Blower, No. 1 Root, positive pressure
Compressor, 8x8 Ingersoll-Rand.
Drill press, 4-sp., Henry & W., b. b.
Drills, 4 spindle, Prentice Bros.
Grinder, disc, No. 8 Besly.
Keyseater, No. 0 Mitts & Merrill.
Lathe, 10" Seneca Falls.
Lathe, 28"x14" Pond, c. r.
Lathe, double head key lathe.
Miller, Lincoln, table 46x74.
Miller, double end valve.

1302 Ontario Ave., Cleveland, O.

Miller, vertical, table 22"x54.
Magnetic separator, No. 1 Ding.
Planer, 40"x40"x8" Pond, heavy, 1 hd.
Press, No. 93 C Toledo dbl. crank.
Radial drill, 30" Gang plain.
Radial drill, 6" Dreses universal.
Screw machine, 14" Bardons & O.
Screw machine, 24" Cleveland auto.
Turret lathe, 12" Warner & Swasey.
Turret lathe, 14" universal, b. g.
Turret lathe, 20" heavy, b. g.

FOR SALE BY

E. L. Easley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

GRINDERS.

18" No. 7 Besly, double disc.
24" Leland-F., double wet tool, (2).
26" No. 1 Diamond automatic, face.
1-sp. Davis & Egan cock grinder.
6-sp. Milwaukee cock grinder.

SCREW MACHINES.

1" Cleveland automatics, (2).
8" Cleveland automatics, (2).
3" No. 2 B. & S. semi auto.
14" Dreses, hand, f. g. hd.

MISCELLANEOUS.

Blowers, various sizes, (6).
Borer, cylinder, Moline 2 spindle.
Bolt cutter, 14" Acme, double head.
Brake, 8" Keene, hand power.
Drill press, 32" Hoefler, b. g. & p. f.
Forming roll, power, 98" Bertsch.
Gear cutter, 48" Brainerd, spur.
Keyseater, No. 1 Knowles horiz.
Miller, 18x6x15 No. 0 Owen.
Millers, valve, for brass, (2).
Oil separator, No. 1 American.
Pipe machine, 2" No. 2 Bignall & K.
Planer, 48"x48"x14" Pond, 1 head.
Planer, 24"x24"x6" Pond.
Planer, 24"x24"x8" Pond.
Profiler, No. 3 H. Becker-B.
Pulley lathe, 60" Stevens.
Sprocket turning and boring machine combined, Baker Bros.
Sprue cutter, 10" Adt. power.
Welder, for boiler flues, Hartz.

FOR SALE BY

Strong & Hery Co.,

210 State St., Rochester, N. Y.

In stock for immediate delivery:

LATHES.

14"x8" Hamilton, new, (5).
18"x10" Hendey, q. c., c. r., t. a.
13"x8" Barnes, p. c., c. r.
18"x8" Porter, p. c., c. r.
28"x12" Bridgeford, new.

PUNCH PRESS.

No. 20 Bliss geared punch press.

BORING MILL.

Beaman & Smith, 2 spindle, practically new.

STEAM HAMMER.

1000 lb. Erie double frame steam hammer.

HAND MILLING MACHINES.

No. 2 Garvin new hand milling machines, (2).

MISCELLANEOUS.

Boring mill, 30" Baush, with 4-jaw independent chuck.
Drill press, 36" Cincinnati.
Drill press, 36" Aurora.
Slab miller, 16x48 Bement.
Thread miller, 12x48 Pratt & W.

We also carry in stock for immediate shipment a large assortment of new round, flat, square and hexagon Cold Rolled Steel; Lathe and Drill Chucks; Arbor Presses. Grinders, Electric Motors, Screws, Bolts, Milling Cutters, etc. Advise us concerning your requirements. We have been in the machine tool and supply business for 20 years and are confident that we can serve you to your advantage.

SECOND-HAND MACHINERY

FOR SALE BY

Brownell Machinery Co.,

Cutting-off mch., 3" Hurlbut & R.
Drills, 24" Prentice, new.
Engine lathes, 14"x8" Worcester,
c. r., new, (3).
Eng. lathe, 14"x6" Reed, c. r., new.
Engine lathe, 16"x6" Prentice, d.b.g.,
c. r. and taper, A-1 condition.
Eng. lathes, 16"x6" Rockford, new (5).
Engine lathe, 18"x8" Star.
Engine lathe, 20"x12" Perkins.
Gear generators, 12" Gleason, single tool, (2).
Generator, 15" Gleason, double tool.

11-13 Eddy St., Providence, R. I.

Gear generator, 48" Gleason, single tool, for spurs, bevels, internal.
Grinder, disc, Diamond 6-K-3.
Planer, 24"x24"x5' Wheeler.
Planer, 24"x24"x6' Whitcomb.
Planer, 72"x72"x12' Betts, 2 heads.
Radial drill, 3' Fosdick, new.
Shaper, 15" Hendey.
Shaper, 15" Kelly, new.
Shaper, 15" Potter & Johnston.
Shaper, 18" Kelly, new.
Turret chucking lathe, 20"x6" Florence.

FOR SALE BY

A. D. White Machinery Co., 108-114 N. Jefferson St., Chicago

SCREW MACHINES.

5-16" Lavigne.
7-16" Cleveland, friction fd.
6" Cleveland, friction fd.
6-1" Cleveland, friction fd.
6-1" Cleveland, jigger feed.
4" Hartford, (2).
1" Cleveland, friction jigger feed.
1 1/2" Lavigne, (4).
2" Hartford.
2 1/2" Hartford.
6" Cleveland, semi-automatic.
1 1/2" Drees, hand, grd. fr. hd.

ENGINE LATHES.

12"x 5' Pratt & Whitney.
16"x 6' LeBlond.
16"x12' Beaman & Smith.
15"x 8' Peerless.
24"x10' Putnam, (2).
28"x12' Fildfield.
30"x14' Blaisdell.

DRILL PRESSES.

14" Mechanics.
20" Barnes.
28" Barnes, sliding head.
28" Bickford, sliding head.
30" Kerkhoff, sliding head.
32" Bickford, sliding head.
34" Barnes, sliding head.
36" Bickford plain radial.
2 spdl. Henry & Wright high speed.
8 spd. Valley City mult..No. 2 taper.
10 spindle Pratt & W. multiple.
12 spdl. Baush multiple, No. 2 taper.

PLANERS AND SAWS.

24"x24"x 6' Powell, 1 head.
32"x32"x 8' Betts, 1 head.
35"x35"x12' Niles, 2 heads.
Bryant cold saw, 1 1/2" dia. saw.
No. 5 1/2" Nutter Barnes.
Nutter Barnes saw sharpeners, (2).

GRINDING MACHINES.

No. 1 Landis univ., 10"x20".
No. 3 Landis univ., 12"x42".
18" Ransom, disc.
Yankee Style "B", drill.
2-spdl. valve grinder.
No. 6 Diamond floor grinder.
14" Norton floor grinders, (2).
1 1/2" Bridgeport floor grinders, (2).
2" No. 7 Sterling floor grinder.
Springfield dbl. wheel, water.
No. 2 Leland & F. water grinder.

PRESSES.

Nos. 2 & 4 Adriance, o. b. l.
No. 4 McDonald, o. b. l.
No. 120 Crosby, o. b. i.
No. 16 Wold press, open back.
Nos. 19 and 30 Crosby, open back.
Nos. 40 and 45 Crosby, open back.
No. 66 Crosby arch press.
No. 18 Bliss horn press.
No. 29 Bliss, gang, dbl. action.
No. 34-A Bliss, double action.
150-ton, 36" Sellers wheel press.

MISCELLANEOUS.

Bolt cutters, 1 1/2 & 3" National, s. hd.
Boring machine, 3 1/2" bar, Binsse.
Boring mill, 40" Baush, 2 hds.
Boring mill, 42" Dawson, sgl. hd.
Gear cutter, 18" Gould & Eberhardt.
Hammers, 40 & 60 lb. Bradley, cu. hlv.
Keyseaters, 18" & 36" Morton, port.
Miller, No. 24 Brown & Sharpe, pl.
Miller, slab, 22" bet. housings.
Oil gas generator, No. 3 American.
Pipe machine, 2" Jarecki.
Shaper, 16" Smith & Mills.
Shaper 20" Smith & Mills.
Shear, No. 380 Toledo, slitting 16 g.
Tapper, 6-sp. No. 6 Bement, grd.
Tapper, Newton pulley tapper.

SECOND-HAND MACHINERY

FOR SALE BY

Enterprise Machinery Co.,

Brake, 8' Chicago, 20 gauge....\$ 95.
 Drill, bench, Emco, new..... 14.
 Grinder, Wells univ., nearly new 200.
 Lathe, 18"x12' Blaisdell, com-
 pound rest, 1 1/2" h.s., chuck.... 290.
 Lathe, spin., 18", tools, fine con... 75.
 Punch & shear, dbl. end, 4 in 4,
 #200, worth tools..... 400.
 Punch pr., o. b. i., No. 2 Consol. 165.
 Punch pr., o. b. i., No. 3 Emco new 260.

32-34 S. Clinton St., Chicago, Ill.

Punch press, No. 2, o. b. i.\$ 85.
 Punch, shear and rod cutters,
 power, 8" to 1", new, \$115 to... 290.
 Screw machine, 2 1/2" Foster,
 power feed, good condition.... 685.
 Shaper, 16" trav. (36") head.... 175.
 Shear, bevel, b. g., 4" capacity... 175.
 Shear, sq. power, 42", cap. 1/2".... 250.
 Shear, square, power, 30"..... 75.
 Shear sq., 36" new, 18 g., \$59, 62" 158.

FOR SALE BY

Herman L. Winterer,

908-910 Beach St., Philadelphia, Pa.

ENGINE LATHES.

39"x26' New Haven.
 38"x18' Lodge & Davis.
 26"x21' Bement.
 24"x12' Flather.

22"x6' 2" Fifeild.
 21"x11' Lodge & Davis, t. a.
 20"x8' Star, s. c.
 And many others of smaller sizes.

TURRET LATHES.

14" Jones & Lamson, chucking.
 7"x14" Potter & J., chucking, (2).
 4"x28" Niles-Bement-Pond "Mil-
 waukee", rigid.
 60"x10' Henley.

37"x10' Lodge & S., b. g., 5" h. s.
 30"x 5' Lodge & S., b. g., 2 1/2" h. s.
 24"x 8' Blaisdell.
 24" spindle American auto. turret.

DRILL PRESSES.

30" Gang radial.
 40" Bement-Miles.
 30" Bement.

24" drills, several.
 21" Baker high speed, (2).

MISCELLANEOUS.

Bolt cutter, 1 1/2" Acme, single head.
 Bolt cutter, 1 1/2" National, sgl. head.
 Bolt cutter, 1 1/2" National, dbl. head.
 Boring and turning mill, 42" Bullard,
 rapid production.

Planer, 24"x6' Fitchburg.
 Planer, 24"x8' Fitchburg.
 Planer, 25"x10' Fitchburg.
 Slab miller, 16"x4 1/2" Newton.
 Slab miller, 20"x 4 1/2" Franklin.

Large assortment of Boilermakers' and General Machinery.
 Send for complete list.

FOR SALE BY

Chas. Molitor Machinery Co.,

215-221 S. Clinton St., Chicago, Ill.

LATHES.

12"x6' Davis, quick change, taper,
 draw collets.
 20"x10' Whitcomb-Blaisdell.
 22"x10' Economic.

22"x14' Fifeild.
 32"x14' Putnam.
 52"x16' New Haven.

SHAPERS AND PLANERS.

20" Steptoe.
 26" Davis & Egan.
 26" Walcott.

30"x 8' Fitchburg.
 20"x 6' Wheeler.
 24"x 6' Pond.

MILLING MACHINE.

No. 3 Garvin, universal.

DRILL PRESSES.

20" Mechanics, 2 spindle.
 22" Cincinnati.
 22" Rockford, sliding head.

31" Gould & Eberhardt.
 36" Grant universal.
 Baker Bros. boring mill.

SCREW MACHINES.

8" Pratt & Whitney, (2).
 8" Foster-Kimball.

1 1/2" Pearson, turret.
 16" Windsor, turret.

MISCELLANEOUS.

Drill chks., 9-32" Russell, 1,000, new.
 Large stock iron, brass, tinnors
 machinery, etc.

Power roller, 6"x10".
 Squaring shears, 5' and 8', foot pwr.
 Turret, 16" Springfield Fox.

SECOND-HAND MACHINERY

FOR SALE BY

Broadway Machinery Co., 236-238 Broadway, Cincinnati, Ohio

LATHES.

10"x 4' Shepard, h. s., c. r.	24"x16' Blaisdell, h. s., c. r.
13"x 6' Sebastian, h. s., c. r.	26"x16' Niles, h. s., c. r.
16"x 8' Reed, h. s., c. r.	28"x20' New Haven, comp. rest.
17"x 6' Porter, h. s., c. r.	30"x16' Harris, old type.
20"x10' Silk-Anderson, h. s., c. r.	50"x10' engine lathe.
21"x10' Lodge-Davis, h. s., c. r.	68"x36' Niles, old type, c. r.

SHAPERS AND PLANERS.

16" Smith & Mills, plain crank.	30"x30"x 8' Fitchburg, 1 head.
21" Juengst, b. g. crank.	36"x36"x10' Pond type, 1 head.
24" Steptoe, geared.	48"x48"x35' old type, 1 head.

MISCELLANEOUS.

Bolt cutter, 1 1/2" Economic.	Punch, No. 6 Long & Alistatter.
Bolt cutter, 2" Acme.	Punch and shear, No. 8 L. & A.
Miller, vertical, No. 9 Bement.	Shear, Greenleaf, 25" throat.
Punch, geared, No. 3 L. & A.	Slotter, 20" Niles.

FOR SALE BY

Badger-Packard Mch. Co., 72-74-76 W. Water St., Milwaukee, Wis.

DRILLING MACHINES.

31" Rockford, sliding head, back geared, reversing attachment.	Graham sensitive, 1/2" capacity.
20" Barnes, geared.	3-sp. Henry & Wright, ball bear'g(2).

LATHES.

14"x8' Flather, quick change.	24"x12' Perkins, compound rest, solid spindle, countershaft.
18"x10' Blaisdell, compound rest.	

MISCELLANEOUS.

Air compressor, 3 1/2"x4 1/2", type AO Gifford.	Grinders, knife, 30" Globe.
Air compressor, 10x10 Franklin, complete with tanks and fittings.	Grinder, water, 20" Diamond No. 6 1/2.
Buffing lathe, No. 10 Hanson-Van Winkle.	Hack saw, No. 1 Racine high speed.
Grinder, disc, No. 3 Besly.	Miller, No. 2 Hisey, plain.
Grinder, disc, No. 6 Diamond, Gorton type.	Miller, Eynon, with c. s., no vise.
	Punch, bench, No. 21 S. M. & W.
	Screw machine, No. 4 Bardons & Oliver, round turret.

FOR SALE BY

Brown-McDonald Machinery Co.,

906-908-910 North Market Street, . . . St. Louis, Mo.

LATHES.

13"x6' South Bend, (new).	14"x 6' Hamilton, q. c. g.
14"x5' Putnam, s. s., p. r.	17"x8' Fifield, h. s., p. r.
14"x8' Fitchburg, s. s., p. r.	Fox brass lathes, (4).

DRILLING MACHINES.

Barnes, 1/2" capacity, single spindle.	New 20" Champion, w. & l., back geared and power feed.
Reed 4-spindle No. 33, 1/2" capacity.	36" s. h., back geared, p. f.
New 20" Champion, w. & l., (3).	

PLANERS.

26"x26"x7' Whitcomb.	30"x30"x9' New Haven.
----------------------	-----------------------

COMPRESSORS.

8x8 Star, sgl. cyl., dbl. a., belted.	1160 cu. ft. Ingersol, steam, cpd. air.
10x10 Star, with 10x10 vert. engine.	26x20x13 1/2" Norwalk, straight line.

MISCELLANEOUS.

Bolt cutter, sgl. hd., 1 1/2" National.	Pipe machine, 4" Bignall & Keeler.
Cold saw, Q. & C.	Rolls, 8' Hilles & Jones, cap. 1/2".
Friction saw, Ryerson, motor driven.	Shaper, 14" Steptoe, crank.
Hack saw, Atkins Kwik Kut.	Shears, square, 37" Bertsch, 15" gap.
Hammer, helve, 60 lb. Knowlton.	Slab miller, 48" Cincinnati.
Hammer, helve, Rochester, size B.	Steel brakes, 4' and 8'.

SECOND-HAND MACHINERY

FOR SALE BY

The Sterling Cork & Seal Co., 1612-30 Oakwood Ave., Toledo, O.

- 1 Bliss double action automatic bottle cap power press with O. S. Bliss clutch, backing pawl, latest type ratchet and chain feed with slip motion on feed.
- 1 Set (15) double action cutting and drawing dies with punches and blank holders for tin bottle caps.

FOR SALE BY

McMullen Machinery Co.,

Grand Rapids, Michigan

Automatics, 2" Cleveland, (2).
Compressor, 8x8 Bury horiz.
Drill, 20" Barnes, w. & l. f.
Drill, 4' Bickford radial.
Drill, No. 2 Avey 2 spdl. sensitive.
Lathe, No. 4 Cataract precision.
Lathe, 12x6 Davis standard.
Lathe, 14x6 Shepard, q. c. g.

Lathe, 18x6 Reed standard.
Miller, No. 2½ LeBlond universal.
Planer, 24x24x8 Whitcomb.
Press, No. 3 Amer. Can Co., incl.
Riveter, ¾" Shuster elastic.
Riveter, No. 80 Grant.
Screw mach., 2½" Oliver, p. f. to tur.
Shaper, 14" Hendey friction.

Send for complete list.

FOR SALE BY

The Machinery Warehouse, 3705 S. Ashland Ave., Chicago, Ill.

The following Air Compressors, rebuilt and in guaranteed condition. These are in stock and ready for immediate shipment.

STEAM DRIVEN.

14x14x14 N. V. straight line.
12x14x12 Stillwell Bierce.
10x19x12 Laidlaw d. g.
9½x7x10 Westinghouse.

12x16x16 Rand, class C.
12x12x16 Ingersoll-Rand.
10x9x14 Weir & Craig.
8x8x12 Rand Drill Co.

BELT DRIVEN.

14x18 Laidlaw d. g. duplex.
14x 8 Platt Iron Works.

14x12 Laidlaw d. g. duplex.
9x6 Rand.

FOR SALE BY

Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.

LATHES.

24"x10' New Haven, c. r.
22"x 9' 6" Warsaw.
21"x 8' Wood Light, r. f. r.
18"x 8' Willetts, c. r.

16"x 8' Johnson, solid spindle.
15"x 8' Blaisdell, r. f. r.
14"x 6' Lodge & Shipley, hol. spdl.
10"x 4' Gould, solid spindle.

MISCELLANEOUS.

Boring mills, turret head vertical, 36" Brown & Sharpe, (2).
Boring and turning mill, 7' Hilles & Jones.
Broaching machine, No. 2 Lapointe.
Cold cutting-off saws, capacities 4", 5" and 6" round.
Gear cutter, 36" Whiton.
Hammer, steam drop, 600-lb. Bement, 6½" diam., 30" stroke.
Milling machines, No. 4 Garvin, plain, table 6"x30"; No. 0 Pratt & Whitney, plain, table 5"x24".
Pipe cutting and threading machines, 4" and 6".
Planer, 24"x24"x5' Betts, with one head.
Radial drill, 32" Harrington.
Shapers, 24" Hendey heavy duty.
Slab miller, 17"x8' Beaman & Smith, with two horizontal spindles.
¾"x1"x9' 6" Hudson high speed steel, (one bar.)
Stamping and punching presses, a large number of the open back inclinable, straight side and arch types.
Turret lathes, large stock of various sizes and makes.

SECOND-HAND MACHINERY

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,
210-212 Washington Ave., St. Louis, Mo.

LATHES.

11"x 5' Perkins.
 14"x 8' Putnam.
 15"x 6' Carroll-Jamieson.

18"x 8' Lodge & Davis.
 18"x 14' Lodge & Davis.
 22"x 14' Wheeler.

DRILLING MACHINES.

15" Barnes drill.
 20" Barnes drill.

22" sliding head drill.
 32" Hamilton, sliding head.

PLANERS.

22"x 22"x 5' Powell.
 24"x 24"x 6' Cincinnati.

32"x 32"x 14' Niles.
 36"x 36"x 8' Powell.

AIR COMPRESSORS.

6"x 6" belted.
 8"x 8" belted.
 9"x 9"x 9" steam driven.
 10"x 10"x 10" steam driven.

12"x 12"x 16" steam driven.
 600 cu. ft., belted.
 1600 cu. ft., steam driven.

MOTORS.

5 h. p. Wagner single phase.
 10 h. p. Wagner single phase.
 55 h. p. 500 volt d. c.

80 h. p. 500 volt d. c.
 50 h. p. 220 volt d. c.
 50 k. w. 220 volt d. c. generator.

MISCELLANEOUS.

Boring machine, 2-spindle horizontal, Newton.
 Hammer, steam, 600 lb.
 Hammer, 60 lb., Yeakley.
 Pipe machine, 4" portable.

Pipe and nipple machine, 2".
 Punch and shear, 48" throat.
 Punch and shear, double end.
 Punch and shear, Bremmer comb.
 Riveter, 10" cylinder compression.

Some Lathes

No. 79—22"x 16" 5-Step Cone Head Lathe, with 2 headstocks and 2 tailstocks on one bed.

No. 87—24"x 12' (Single Pulley) Engine Lathe.
 No. 881—30"x 30"x 10' 5-Step Cone Head Lathe.

OTHER MACHINES

No. B—36"x 36"x 12' Niles Single Head Planer.
 No. 229—30"x 30"x 10' Cincinnati Double Head Planer.
 No. 234—30"x 30"x 10' Cincinnati Single Head Planer.
 No. 1337—Crompton, Knowles Loom Works Keyseater, 60" stroke, 48" swing.
 No. 661—Globe Tool Sharpener.
 No. 680—Safety Tool Grinder 4"x 32" emery wheel.
 No. 1379—Universal Swivel Table for radial drill.

No. 690—Marion Buffing Mch.
 No. 1607—Bowsher Balan. Ways.
 No. 1336—No. 00 Sturt. Blower.
 No. 2531—Sturtevant, 24" outlet.
 No. A-2033—Laidlaw-Dunn Gordon Duplex Feed Pump.
 No. 000—6" Hersey Rotary Water Meter.
 No. 60—Covel Mfg. Co. Automatic Circular Saw Sharpener.
 No. 2033—Commercial Electric D. C. 40 k. w. 110 volt Generator, compound wound.
 1—15 h. p. Gas Engine, 215 rpm.

USED MOTORS

1—4 h. p. Triumph Electric D. C., 110 volt, 1100 r. p. m.
 1—5 h. p. Reliance D. C. 220 volt, 1150 r. p. m.
 1—3 h. p. General Electric 220 volt, A.C., 60 cycle, 3 phase, 1800 r.p.m.
 1—1½ h. p. Bullock, 220 volt, D. C., 600 r. p. m.
 1—3½ h. p. W. E. 110 or 220 v., d. c., variable speed, 400 to 1675 r.p.m.
 1—5 h. p. Reliance D. C., 220 volt, 1150 r. p. m.

The Lodge & Shipley Mch. Tool Co., Cincinnati, Ohio, U. S. A.

First Class Used Machine Tools

Engine Lathes.

- | | |
|---------------------------------|--------------------------------|
| 18" x 8' Lodge & Shipley, q. c. | 20" x 14' Rahn-Carpenter, gap. |
| 18" x 8' Lodge & Barker. | 25" x 10' LeBlond, turret. |
| 18" x 10' Rahn-Carpenter. | 28-40" x 10' Fay & Scott. |
| 20" x 10' Prentice, taper. | 30" x 12' Blaisdell. |

Screw Machines and Turret Lathes.

- | | |
|-----------------------------|----------------------|
| 3" Garvin. | 15" American, brass. |
| No. 24 Pratt & Whitney. | 21" Universal. |
| 1 1/2" Wood Tilted, geared. | 21" Gisholt. |
| No. 44 Hardons & Oliver. | 24" Morse. |
| 3" x 36" Pratt & Whitney. | |

Drill Presses.

- | | |
|-----------------------------|---------------------|
| 23" Barnes, w. & l. | 2-spindle Rockford. |
| 28" Barnes, sliding head. | 4-spindle Gardam. |
| 32" Hamilton, sliding head. | 4-spindle Slate. |
| 3 1/2" Morris, radial. | |

Shapers.

- | | |
|-------------------------------|-----------------------------------|
| 20" Hendey, shifting belt. | 15" Potter & Johnson, univ., new. |
| 24" Gould & Eberhardt, crank. | 16" Queen City, back geared, new. |

Planers.

- | | |
|-------------------------|---------------------------|
| 28" x 26" x 6' Flather. | 32" x 32" x 8' New Haven. |
|-------------------------|---------------------------|

Milling Machines.

- | | |
|-------------------------|------------------------------------|
| No. 1 Clough, vertical. | 6" x 48" Pratt & W. thread miller. |
| No. 2 Kempamith, plain. | No. 4 Becker, vertical. |

Keyseaters.

- | | |
|------------------------|--------------------|
| No. 2 Mitts & Merrill. | No. 00 Baker Bros. |
| No. 3 Mitts & Merrill. | |

Boring Mills.

- | | |
|-------------------------------|----------------------------|
| 30" Baush, turret head. | 3 1/2" bar, Bement. |
| No. 1 Barnes, horizontal. | No. 1 Franklin, tool room. |
| No. 3 1/2 Binsse, horizontal. | |

Punch Presses.

- | | |
|-------------------------------|--------------------------------|
| No. 3 Walsh, o. b. i. | No. 12 Wold, o. b. i. |
| No. 3 V. & O., o. b. i. | No. 21 Consolidated, hornig. |
| No. 5 Stiles pattern, geared. | No. 3 Bliss, solid back. |
| No. 19-C Bliss, o. b. i. | No. 69-N Bliss, double acting. |
| No. 119 Crosby, o. b. i. | No. 12-A Adriance, drawing. |

Miscellaneous.

- | | |
|------------------------------------|---------------------------------------|
| Axle lathe, Niles. | Pipe machine, 6" Bignall & Keeler. |
| Bending roll, 12'. | Riveter, 1/2" Shuster. |
| Bolt cutter, 1 1/2" Acme. | Riveter, 1/2" Grant. |
| Bulldozer, No. 4 Williams & White. | Screw press, 1 1/2" Stiles. |
| Cold saw, No. 1 Burr. | Squar'g shear, Niagara. 52" Hercules. |
| Cold saw, Espen-Lucas. | Slotting machine, 12". |

Rumely-Wachs Machinery Co.
121 N. Jefferson St., Chicago, Ill.

SECOND-HAND MACHINERY

Bolt Cutters.

No. 2 Adams, 4" capacity.

1" National, double head.

No. 2 Detrick & Harvey double head pipe and nipple machine, cap. 3" to 1 1/2".

3" National, single head.

Boring Machines.

No. 1 Barrett cylinder borer, 3 1/2" bar, 5' centers.

6" bar Barrett type horizontal, 72" table.

36" Niles car wheel borer.

48" swing Niles car wheel borer, for 36" wheels.

Centering Machine.

13" Whiton.

Drilling Machines.

20" Mechanics' friction.

4 1/2' arm Alfred Box & Co. plain radial.

5' Prentice Bros. plain radial, geared feed, tapping, cone drive, (2).

Gear Cutters.

18"x4" Brainard spur gear cutter.

4 spindle Norris semi-automatic multiple bevel gear roughing machine.

Grinders.

No. 300 plow jointer.

Safety Emery Wheel wet grinder.

12"x72" Norton plain (2).

Keyseaters.

No. 2 Lapointe broaching machine.

Engine Lathes.

24"x16" New Haven, 4-step cone, compound rest.

26"x13" Pond, compound rest.

Speed Lathes.

4' Sterling polishing lathe.

13"x5' Blount.

Planers.

24"x24"x6" McFarland-Nottingham.

24"x24"x6" Lodge & Davis.

30"x30"x6" Pond, spur drive.

Presses.

No. 5 Greenerd arbor press.

Punches and Shears.

No. 0 Lennox hand slitting shear.

No. 12 Lennox, hand punch, 12" throat.

Saws.

West Haven power hack saw.

No. 1 O. & C. hack saw.

No. 1 Lindahl iron table saw bench, with saw.

Screw Machines.

1" Pratt & Whitney hand screw machine.

Shapers

18" American back geared crank.

24" Smith & Mills, shifting belt.

Tapping Machine.

Burke, bench tapper, 1" capacity.

Marshall & Huschart Machinery Co.

17 S. Jefferson St.

Chicago, Ill.

615 Chemical Building,

St. Louis, Mo.

Radial Drills

- 3-7' Arm, heavy pattern, Pond Mch. Tool Co.
- 6' Arm, full universal, Niles Tool Works.
- 6' Arm, fan shaped base, outer arm sup., Bickford.
- 2' 5' Arm, speed box, Dresses Mch. Tool Co.
- 4' Arm, speed box, Bickford.

Multiple Drills

- 18-spindle, belt driven, Baush Mch. Tool Co.
- 16-spindle, equipped for motor drive, Baush.
- 4-spindle, Gang style, table 6' in length, Niles.

Upright Drills

- 36" Swing, Prentice Bros. sliding head, bk. grs.
- 32" Swing, Prentice Bros. sliding head, bk. grs.
- 22" Swing, Baker, hi-speed, drills, bores & taps.

Upright

- 16' Swing, heavy, standard modern style, 2 heads, Niles Tool Works, still in place where used.
- 90" Swing, heavy, double head, Betts Mch. Co.
- 88" Swing, heavy, double head, Niles Tool Wks.
- 80" Swing, heavy, double head, Niles Tool Wks.
- 74" Swing, heavy, double head, Niles Tool Wks.
- 60" Swing, hvy., double head, Bullard M.T. Co.
- 37" Swing, hvy., double head, Bullard M.T. Co.
- 38" Swing, turret head, Brown & Sharpe.

Horizontal

- "Niles-Bement-Pond" floor type horizontal spindle, milling, drilling and boring machine, spindle 8" diam., of heavy, modern construction, intended for a variety of large work, such as frames, bed plates, cylinders, wheels and irregular shaped pieces that would be difficult to handle with the ordinary run of shop tools.
- Column moves along the bed for a distance of about 24'. Spindle and working parts adjustable vertically on column to a height of about 14'. Weight about 170,000 lbs.

To save handling and shipment to our warehouses, it will be disposed of at half the new cost, the condition being guaranteed absolutely good as a brand new machine. Inspection in plant west of Pittsburgh.

- 54" Bar knee type swings 80"x80" Bement-Miles.
- 34" Bar floor type drilling and boring machine, Beaman & Smith.

- 60" Swing, 24' bed, New Haven Mfg. Co.'s.
- 66" Swing, 28' bed, Putnam Machine Co.
- 60" Swing, 28' bed, Putnam Machine Co.

PLANERS

- Large Sizes**
 - 78"x72"x12' four heads, Wm. Sellers & Co.
 - 62"x62"x8' two heads, Betts.
 - 54"x54"x 8' four heads, Wm. Sellers & Co.
 - 42"x42"x12' two heads, Pond Mch. Tool Co.
 - 36"x36"x12' three heads, Wm. Sellers & Co.
 - 36"x36"x 8' four heads, Wm. Sellers & Co.
- Small Sizes**
 - 32"x32"x12' two heads, Pond.
 - 32"x32"x 8' one head, Pond.
 - 28"x28"x 6' one head, Pratt & Whitney.

Rotary Planer No. 2 Cleveland 50" cutter head, 6' travel, with bed-plate 3' x 8'.

Plate Planer

17' 6" for edge planing, Hilles & Jones.

"Planer Type"

- MILLING MACHINES**
 - 36"x30"x 5' vertical and horiz. spindle, Newton.
 - 36"x22"x 8' horizontal spindle only, Newton.
 - 24"x24"x14' horiz. spdl., Ingersoll M. Mch. Co.
 - 24"x24"x 6' horiz. spdl., Ingersoll M. Mch. Co.
 - 22"x22"x11' horiz. spdl., Newton Mch. Tool Co.
- Heavy, table 60"x14" all automatic feeds.
- No. 34, table 36"x12" Garvin.
- 10 Lincoln type, table 27"x6" Pratt & Whitney.

Plain

- 18" stroke, T. C. Drill Machine Co.
- 12" stroke, Putnam Machine Co.
- 30" stroke, combination keyseater and slotter.

SHAPERS

- 28" stroke, Hendey Co.
- 20" stroke, Walters Co.
- 12" stroke, traveling-head, Wm. Sellers Co.
- 2 20" stroke, back geared, high speed.
- 2 14" stroke, plain.
- 12" stroke, plain.

"Used"

New

Single-End

- PUNCHES AND SHEARS**
 - 24" throat, Standard, with assortment of punches, -no. 2.
 - 30" throat, splitting shears, cap. 4" plates, -no. 2.
 - 40" throat, Cleveland, with punch and die holder.
 - 42" thr., standard punch, with assortment of dies, -no. 2.
 - 48" throat, Cleveland, with shear blade, and angle blocks.
 - 48" throat, Long & Allstatter with splitting shears, cap. 8-14" dia. 2" round.

LATHES

- 60" Swing, 24' bed, New Haven Mfg. Co.'s.
- 66" Swing, 28' bed, Putnam Machine Co.
- 60" Swing, 28' bed, Putnam Machine Co.

Bar floor type drilling and boring machine,
Beaman & Smith

Triple Geared

- LATHES**
62" Swing, 24' bed, New Haven Mfg. Co.'s.
66" Swing, 28' bed, Putnam Machine Co.
48" Swing, 16' bed, Pond style, raise-blks. to 60".
43" Swing, 20' bed, heavy, Pond Mch. Tool Co.
28" Swing, 11' bed, Bogart.
24" Swing, 18' bed, heavy, Bement.
28" Swing, 16' bed, Putnam Mch. Co.
30" Swing, 8' bed, Pond.
32" Swing, 30' bed, Pittsburgh, dbl. bk. grs., taper.
33" Swing, 12' bed, Fitchburg.
30" Swing, 14' bed, Bement-Miles, heavy.
28" Swing, 14' bed, Fitchburg.
28" Swing, 18' bed, Pond.
24" Swing, 24' bed, Fitchburg.
24" Swing, 12' bed, Schumacher & Boye.
24" Swing, 10' bed, Lodge & Davis.
18" Swing, 8' bed, Schumacher & Boye.
24" Sw., rapid traverse to turret, 24" hole Gisholt.
21" Swing, gap style 30" in gap, Gisholt.
2" 20" Sw., full auto, 2" hole, Potter & Johnston.
22" Swing, turret screw machine 24" hole, Garvin
No. 13 15-16" thru wire feed.

Turret Lathes

- Brass Lathes**
No. 1 American, 17" sw., 8' bed, with chasing bar.
No. 2 American, 18" sw., 8' bed, with chasing bar.
Tire Lathes
42" Swing, dbl. hd., for cutting both wheels at one operation, open center type, Niles Tool Works.

NEW LATHES

- 2 14" Sw., 6' bed, Standard, 3-step cone, d. b. g.
14" Swing, 6' bed, qk. chg., 3-step cone, d. b. g.
6 16" Sw., 8' bed, Standard, 4-step cone, spl. b. g.
16" Swing, 8' bed, qk. chg., 3-step cone, d. b. g.
6 18" Sw., 8' bed, semi-qk. ch., 3-step cone, d. b. g.
7 18" Swing, 8' bed, qk. ch., 3-step cone, d. b. g.
6 24" Sw., 10' bed, semi-qk. ch., 3-step cone, d. b. g.
Met. abes 2-in-1 double spindle lathes hyv. pattern.
48" Triple geared and 26" back geared swing, 12,
18 and 30' beds in stock, Immediate shipment.

Back Geared

Double-End

- 16" throat on each end, Hilles & Jones, punching capacity, 3" thru 1 1/2"; shearing capacity, 1 1/2" plates, 8x14" flats.
24" throat on punch end, and 20" shear end, Hilles & Jones.

BENDING ROLLS

- 10' 8" between housings, Hilles & Jones pattern, drop end, capacity 1" plate.

STEAM HAMMERS

- 600 lbs. single frame, Miles.
1000 lbs. double frame, Erie.
2500 lbs. single frame, Bement-Miles.
4500 lbs. double frame, Miles.
10000 lbs. double frame, Bement-Miles.

BOLT CUTTERS

- 24" Acme, single head.
14" Acme, double head.
14" Putnam, single head.

KEYSEATERS

- No. 2 Baker, 20" capacity 2" wide, 18" long.
Baker slotter and keyseater, 30" stroke.

MISCELLANEOUS

- Gear cutter, 36" spur and bevel, Gould & E.
Gear cutter, 36" spur, Newark.
Pipe machine, 8" Saunders.
Double-end cutting-off and centering machine, 9" capacity, Bement.
Cold saw, cap. 5" round, 9" beams, Lea-Simplex.
Gas engine, 15 h. p., Fairbanks-Morse.
2 10-ton, Niles traveling cranes.

J. J. McCABE 149 Broadway NEW YORK

ReMANUFACTURED - (ORIGINATED BY US) - MACHINE TOOLS

FOR QUICK SHIPMENT

Partial List of Largest Stock in the World

PLANERS.

- 2-67"x46"x18' W. & P., 4 hds.
- 1-87"x48"x10' W. & P., 3 hds.
- 3-76"x48"x18' W. & P., 3 hds.
- 1-48"x36"x12' Cincinnati, 3 heads.
- 1-48"x36"x8' W. & P., 1 head.
- 1-42"x42"x14' W. & P., 2 heads.
- 1-36"x36"x17' Powell, 2 heads.
- 1-36"x36"x10' Pond, 2 heads.
- 1-36"x36"x10' Gray, 2 heads.
- 1-36"x36"x8' W. & P., 2 heads.
- 1-33"x33"x8' Ohio, 2 heads.
- 1-30"x30"x12' W. & P., 3 hds.
- 2-30"x30"x10' W. & P., 3 hds.
- 1-30"x30"x8' W. & P., 2 hds.
- 1-30"x30"x6' Pease.
- 1-27"x27"x7' Flather, 2 heads.
- 2-27"x27"x6' Ohio.
- 1-26"x26"x7' Gray.
- 1-26"x26"x6' Hendey.
- 1-24"x24"x6' Gray.
- 1-24"x24"x6' Pond.
- 3-24"x24"x6' American.
- 1-24"x24"x6' Flather.
- 1-24"x24"x6' Whitcomb.
- 1-24"x24"x6' Davis & Egan.
- 1-22"x22"x6' American.
- 1-22"x22"x5' Gray.

LARGE MILLERS.

- 1-No. 5-C Becker-Brainard.
- 1-No. 3 Becker-Brainard.
- 1-No. 6 Becker-Brainard, vertical.
- 1-No. 32 Brainard slab.
- 1-No. 3-B Kearney & Trecker.

LARGE LATHES.

- 1-60"x16 $\frac{1}{2}$ " Fitchburg.
- 1-51"x19' Pond.
- 1-46"x18' New Haven.
- 1-42"x12' Putnam.
- 1-40"x16' Gleason.

LARGE LATHES — Continued.

- 1-36" Hiles cylinder.
- 1-36"x17' Pond.
- 1-36" Stevens Pulley.
- 1-36"x14' Fitchburg.
- 1-31"x12' Bradford.
- 1-30"x24' Bradford.
- 1-30"x17' Lodge & Shipley.
- 1-26"x12' Davis.
- 1-26"x12' LeBlond.
- 1-26"x12' American.
- 1-26"x10' Greaves & Klusman.
- 1-25"x26' American.
- 1-25"x14' Bradford.
- 1-25"x12' Walcott.
- 1-24"x12' Blaisdell.
- 1-24-48 Extension bed gap.
- 1-24"x12' New Haven.
- 1-24"x12' Draper.
- 1-24"x10' New Haven.
- 1-24"x10' American.
- 1-22"x16' Flather.
- 1-22"x12' LeBlond.
- 1-22"x12' Greaves & Klusman.
- 1-22"x10' American.
- 1-22"x10' Whitcomb-Blaisdell.
- 1-22"x10' Schumacher & Boye.
- 1-22"x8' Flather.
- 1-21"x16' LeBlond.
- 1-21"x14' Flather.
- 1-21"x12' LeBlond.
- 1-21"x12' Bradford.
- 1-20"x12' Flather.
- 1-20"x12' Hamilton.
- 1-20"x12' Draper.
- 3-20"x10' American.
- 1-20"x8' Greaves & Klusman.
- 1-20"x8' Bullard.
- 1-20"x8' American.
- 1-20"x6' Lodge & Shipley.
- 1-20"x4' Flather.
- 1-19"x12' Lodge & Davis.

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The "New Britain" Blacksmith's Tool Rack



Everything in its Place

There is a rail along the edge of top shelf at sides and rear to hold fullers, flatters, tongs and other long-handled tools.

The three trays provide ample space for other accessories—all right at hand and in plain sight, saving time and lost motion. A drawer, with lock and key, furnishes a safe place for private tools.

This rack is strong and durable, will stand plenty of rough treatment, and is not damaged by hot work, yet the use of pressed steel for the trays renders it light enough to be readily moved about. It is mounted either on feet or with casters having ball-bearing swivels, as desired.

Made in two sizes, with trays 20x26 or 26x32 inches.

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60 Chestnut St., New Britain, Conn.

